



# contributions to economic analysis

Masudul Alam Choudhury

## **Islamic Economics and Finance** **An Epistemological Inquiry**

ISLAMIC ECONOMICS AND FINANCE  
AN EPISTEMOLOGICAL INQUIRY

CONTRIBUTIONS  
TO  
ECONOMIC ANALYSIS

291

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# ISLAMIC ECONOMICS AND FINANCE AN EPISTEMOLOGICAL INQUIRY

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## *Introduction*

This series consists of a number of hitherto unpublished studies, which are introduced by the editor in the belief that they represent fresh contributions to economic science.

The term “economic analysis” as used in the title of the series has been adopted because it covers both the activities of the theoretical economist and the research worker.

Although the analytical methods used by the various contributors are not the same, they are nevertheless conditioned by the common origin of their studies, namely, theoretical problems encountered in practical research.

Since, for this reason, business cycle research and national accounting research, work on behalf of economic policy, and problems of planning are the main sources of the subjects dealt with, they necessarily determine the manner of approach adopted by the authors. Their methods tend to be “practical” in the sense of not being too far remote from application to actual economic conditions. In addition, they are quantitative. The editors hope that the publication of these studies will help to stimulate the exchange of scientific information and to reinforce international cooperation in the field of economics.

The Editors



## *Acknowledgment*

I am thankful to many colleagues and institutions for their assistance in bringing up this important work to its fruition for publication. As a most comprehensive work on the epistemological foundations of a theory of Islamic economics and finance, this work required a lot of initiative to get it up to the publication level. It was very difficult to bring the entire subject matter and contents of this book to a fair degree of understanding among colleagues. The impediment in this direction was the prevalent subservience of Islamic scholarship to mainstream economic theory that has its own epistemological leaning, which has already received serious criticism from the highest levels of thought. But these critical examinations along with the Islamic epistemological scholarship have not seeped into intellection. Islamic economics and finance as a subject area leaned and slumbered in the bosom of a disappearing lineage of neoliberal paradigm. It never had the chance to mature and become an original contributor in the absence of intellectual consciousness that must establish the domain of high thought. The present book is a criticism of that uncritical and epistemologically barren intellection in Islamic economics and finance. While this book takes a bold and original approach to the epistemological foundations of Islamic economics and finance, conceptually, analytically, and empirically, it seriously rejects the prevalent scholarship on intellectual grounds.

The author is deeply grateful to the College of Commerce and Economics, Sultan Qaboos University, Muscat, Sultanate of Oman, for its generous internal research funding of the whole project and for further extending the award for writing this book to its completion. My thanks are to my colleagues who have contributed in various aspects to this research project and some who have contributed chapters to this book. Among these names are Associate Professor Dr. Noreha Halid of the Faculty of Economics, Universiti Kebangsaan Malaysia; Associate Professor Dr. Mohammad Saleh Ahmed of the Department of Statistics, Sultan Qaboos University; and Dr. Mohammed Nurul Alam of the Department of Accounting, College of Commerce and Economics, Sultan Qaboos University for contributing their wonderful chapters in conjunction with my authorship. I also thank Professor Dr. Mohammad Shahadat Hossain, Chairman of Computer Science, Chittagong University for helping out as a research consultant in developing the Spatial Domain Analysis (Geographical Information System) extension of the empirical model.

The entire completed manuscript had undergone meticulous review and evaluation before being accepted in this celebrated volume series entitled *Contributions to Economic Analysis* under Emerald Publications. This series was originally initiated by the Nobel Laureate in Econometrics, Professor Jan Tinbergen. We cherish our publication immensely for being a candidate in this celebrated scholarly series. I thank Mr. Chris Hart, publisher of the series with Emerald Publications for doing strenuous spadework in externally reviewing the work and bringing it to its final acceptance for publication.

We hope that this manuscript in *Contribution to Economic Analysis, Vol. 291* will be fruitfully used by many who are today searching for new epistemological vistas of original thought both in Islamic economics and finance, and in an entire gamut of socio-scientific methodology.

Masudul Alam Choudhury

## *Foreword*

This advanced study in philosophy and moral theology brings to bear the universal principles of all the world religions on the socio-political-economics of globalization. It contrasts the bottom-up paradigm of capitalism based on the autonomous individual as the ultimate source of truth and justice with the top-down paradigm of higher truth embodied in a transcendent source, known in Islam as *Tawhid*.

*Tawhid* is both the Oneness of God and the coherent unity of all Creation, which our own human nature prompts us to understand intuitively. This produces a responsibility to derive from this understanding through our own reasoning capabilities some general ethical guidelines for human action, known in Islam as *maqasid al shari'ah* or the irreducibly highest purposes and universal principles of jurisprudence. Put in the philosophical terms used in moral theology and in the scientific search for knowledge, this is the task of epistemology in relating the ontology or Being of God to the axiology of transcendent justice. Man cannot create this axiology or knowledge of justice by himself but must seek it from divine revelation, scientific observation of the material world, and reasoned interpretations of both, which are known in Islamic thought, respectively, as *haqq al yaqin*, *'ain al yaqin*, and *'ilm al yaqin*.

Based on many years and even decades of thought and writing, Professor Choudhury develops in this book a third way of self-actualization through an evolution toward social consciousness, which he calls "the third level of reality," other than socialism, which is the collectivization of individuals, and capitalism, which is the denial of moral community, in order to avoid the collapse of civilization from current trends of globalization. This book is designed for an elite audience capable of developing the *Tawhidi* core of the *maqasid al shari'ah* for a new generation of scholars who must address the barriers to justice in the existing institutions of globalization and thereby develop globalization as a mercy rather than as a threat to humankind.

In stark terms, Professor Choudhury suggests that the conflict paradigm inherent in capitalism, where order is supposed to arise out of conflict among individuals seeking power, prestige, plutocracy, and wanton pleasure, can produce the end of history in a series of cataclysmic events that will trigger a decline into global entropy, which, according to the Second Law of Thermodynamics, is the dissipation of energy eventually



into the stasis of permanent immobility and death, otherwise known as the end of civilization.

Since man controls his own destiny and is capable of learning wisdom from the above three sources of knowledge, *haqq al yaqin*, *'ain al yaqin*, and *'ilm al yaqin*, the faith-based scholars and wise leaders in the world religions must hope and build toward a societal transformation through the ideals, praxis, and enactment of ethical moral precepts arising from a unitary and symbiotic way of thinking that emanates especially from the Islamic world view but is inherent in all the world religions.

Professor Choudhury explains how the extension of the “liberal mind based on self-interest, conflict, competition, and hegemony of self” has now extended to the macro-level where it governs the institutions of money, credit, investment, and all economic and political priorities. Although rational choice in effectiveness of action is rewarded, nevertheless ignored and evaded are questions of whether any of this is moral in the sense of reflecting a systems-based unity of knowledge allowing for the evolution of thought and practice toward what is morally good.

Based on the belief that everything in the universe has a purpose based on the consciousness that created and sustains and pervades it, the task is to develop a “reversible entropy” through a morally centered vision of the human future where all systems of human thought and action converge in a unified field of consciousness.

A great merit of this magnum opus is its detailed explanation of the universal principle or *maqsad* of *haqq al mal* through specific recommendations designed to reorient Islamic thinkers and human thought generally. The aim is to expand both vision and policy beyond the narrow focus of those who, for example, merely want to “Islamize” banking so that it could claim to be Islamic but would still regard money, credit, and debt as commodities to be sold at a profit, and those who promote investment not for the production of real goods but for unproductive “financial services,” which in 2008 in America accounted ironically for a third of the official gross national product.

This book addresses many myths, such as the un-Islamic and unrealistic myth of economic scarcity, which ignores the unlimited potential of human creativity to find and develop the bounties of nature for human use.

Another key myth that Professor Choudhury exposes is the assumption of an inevitable clash between capital and labor. He points the way toward cooperative mechanisms that promote “the social and institutional privileges of participation in sharing costs, risks, and benefits.” He speaks of “just property rights” based on “joint venture and joint production.” Institutional mechanisms could include the perfecting of banking, corporate, and tax priorities toward expanding capital ownership, so that, for example, credit could be based on future wealth rather than only on past wealth accumulations.

This breakthrough in economic thought could open up the trillions of dollars of future wealth to everyone as a universal human right. It would also obviate pressures to attack the sacred nature of private property by stealing the wealth of existing owners through governmental redistribution to the poor as a cheap means to avoid revolution. Such thinking “outside the box” could reverse the otherwise inevitably growing wealth-gap within and among countries, which is one of the major causes of terrorism.

Islamic scholars and scholars of all faiths can benefit in expanding their own horizons by studying this seminal exploration of the *maqasid al shari’ah* as a dynamic force in the continuous advancement of understanding, searching, and discovering diverse possibilities within the framework of the classical Islamic concept of *Tawhid*.

Dr. Robert D. Crane  
*Director for Global Strategy,*  
*Global Vision*  
*September 2010*



## *Glossary of Arabic Terms*

<i>a'lameen</i>	Qur'anic world-system manifesting the signs of <i>Allah</i> in oneness
<i>ad-Dayn</i>	debt financing
<i>akhirah</i>	the Hereafter
<i>al-hisbah fil-Islam</i>	social regulatory body of the Islamic state in classical Islamic period for guidance of worldly matters
<i>al-maslaha-wal-Istihsan</i>	juristic preferences for the public purpose
<i>al-sawad al-a'zam</i>	the majority
<i>Allah</i>	God
<i>asma al-husna</i>	attributes of <i>Allah</i> , also His beautiful names of sanctity
<i>asr</i>	flow of time
<i>ayath Allah</i>	Signs of <i>Allah</i> in the order of things
<i>ayn al-yaqin</i>	functional ontology and evidences in worldly knowledge of divine oneness
<i>bay-muajjal</i>	deferred payment in Islamic financing
<i>burhan aqli</i>	rational demonstration
<i>dahr</i>	transcendental time
<i>danaq</i>	smaller denomination of currency setting during the time of the Prophet Muhammad
<i>durruriyath</i>	necessaries
<i>falah</i>	well-being
<i>fatwa</i> (plural <i>fatawa</i> )	interpretive ruling of the clergy among Muslims
<i>fiqh</i>	interpretation of <i>Qur'an</i> and <i>hadith</i> ( <i>Sunnah</i> ) by discourse of the clergy
<i>fiqhi</i>	adjective of <i>fiqh</i>
<i>fitra</i>	essence or nature of things
<i>fuqaha</i>	the learned clergy engaged in Islamic interpretive discourse
<i>ghayb</i>	unseen
<i>hadith</i>	sayings of the Prophet Muhammad for the guidance of mankind
<i>hajjiyyath</i>	comforts of life

<i>haqq ul-yaqin</i>	knowledge of <i>Allah</i>
<i>Hanifites</i>	followers of the school of interpretive thought established by Imam Hanifa
<i>hayath at-tayyabah</i>	good things of life, life-sustaining blessings
<i>hikma</i>	wisdom
<i>hudal il-mutaqqin</i>	spiritual guidance
<i>ibadah</i>	Islamic worship
<i>ijara</i>	leasing/renting as Islamic financing instrument
<i>ijtihad</i>	authoritative Islamic research for common acceptance and validity
<i>ikhlas</i>	divine purity
<i>ikhtiyar</i>	free will
<i>illiyun</i>	book of good deeds mentioned in the <i>Qur'an</i>
<i>ilm al-yaqin</i>	worldly knowledge
<i>istawa</i>	the metaphysical ontological throne of <i>Allah</i>
<i>imam</i>	Islamic religious leader
<i>israf</i>	waste, excessiveness
<i>Istisna</i>	Islamic financing instrument in which loanable capital is made out on a profit-sharing basis for manufacturing purposes when the asset is not yet made but will be made in the future
<i>kashf</i>	inner introspection
<i>kawn</i>	<i>Allah's</i> Will
<i>mantiq</i>	rationalism
<i>maqasid as-shari'ah</i>	purpose and objective of the <i>shari'ah</i>
<i>mazhabs</i>	<i>fiqi</i> schools in Islam
<i>maslaha</i>	social objective evaluative criterion of <i>maqasid as-shari'ah</i> ; literally meaning public preference
<i>mithqal</i>	smaller units of currency setting during the time of the Prophet Muhammad
<i>muamalat</i>	worldly affairs
<i>mudarabah</i>	profit-sharing between participants in an enterprise as primary Islamic financing instrument
<i>mudarib</i>	participatory service providers in an Islamic enterprise
<i>mufti</i>	Islamic preacher
<i>mujtahid</i>	learned scholar in Islam
<i>murabaha</i>	mark-up pricing in hire-purchase as Islamic financing instrument
<i>musharakah</i>	equity-participation between investors as Islamic financing instrument
<i>nahl</i>	bee (title of a chapter of the <i>Qur'an</i> )

<i>Qur'an</i>	revealed text from God to the Prophet Muhammad for the guidance of all who seek guidance
<i>Qur'anic</i>	adjective of the <i>Qur'an</i>
<i>rabb al-mal</i>	investors in a participatory enterprise in Islam
<i>riba</i>	financial interest including usury
<i>salam</i>	present value of full payment for deferred delivery of goods
<i>Shafeites</i>	followers of the Islamic school of thought established by Imam Shafei
<i>shari'ah</i>	Islamic law
<i>shura</i>	Islamic consultation medium (hence, discursive medium)
<i>shuratic</i>	adjective of <i>shura</i>
<i>sijjin</i>	book of ultimately unpardonable deeds
<i>sukuk</i>	Islamic certificate revolving around <i>mudarabah</i> , <i>musharakah</i> , <i>istisna</i> , and <i>ijara</i> , but fast diversifying into other forms of secondary financing instruments
<i>Sunnah</i>	guidance comprising the sayings and practices of the Prophet Muhammad
<i>sunnat Allah</i>	divine law
<i>tafsir</i>	commentary of the <i>Qur'an</i>
<i>tahsaniyyath</i>	refinements
<i>takaful</i>	Islamic insurance
<i>taqlid</i>	blind following of authority
<i>tasbih</i>	consciousness of <i>Allah</i> in "everything"; hence, a worshipping world-system
<i>tasbih-shura</i>	the discursive process involving conscious reflection on the oneness of <i>Allah</i> in the order of "everything"
<i>Tawhid</i> (also <i>Tauhid</i> )	monotheism; the cardinal article of Islamic belief meaning oneness of <i>Allah</i> . In this work also taken as the oneness or unity of the divine law as it manifests in the order of the world-system by cognition, observation or abstraction known and unknown. In the last case <i>Tawhid</i> is implied in things unknown.
<i>Tawhid al-Rububiyah</i>	Islamic meaning of monotheism explaining <i>Allah</i> as the Sustainer of creation
<i>Tawhid al-Uluhiyyah</i>	<i>Allah</i> as Absolute Creator
<i>Tawhidi</i>	adjective of <i>Tawhid</i>
<i>tijara</i>	trade and commerce
<i>ubudiyah</i>	worshipping
<i>ulemas</i>	the Islamic learned, usually the clergy

*ummah*

conscious world-nation of Islam

*usul al-deen*

foundation of religious thought

*zakat*

a mandatory take on wealth for specific social purposes in ameliorating the Islamic society

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# **THEORETICAL PERSPECTIVES**





## CHAPTER 1

# *Introduction: A Technical Insight*

### *1.1. The quest for epistemic universality and uniqueness in “everything”*

Universality and uniqueness as precepts of the socio-scientific worldview have always been the quest of the highest body of intellectual inquiry. This has been the quest by both the Islamic and Occidental scholars for a long time now. In this postmodern era of epistemological criticism the search for the ultimate explanation of reality has intensified (Ruggie, 2002).

In this regard writes Hawking on the ends of scientific inquiry:

In this lecture I want to discuss the possibility that the goal of theoretical physics might be achieved in the not too distant future, say, by the end of the century. By this I mean that we might have a complete, consistent, and unified theory of the physical interactions which would describe all possible observations. Of course, one has to be very cautious about making such predictions: We have thought that we were on the brink of the final synthesis at least twice before. (1985, p. 119)

Likewise, Einstein (1954a, p. 473) wrote on the epistemological foundations of science that remain embedded in other fields of scientific inquiry as well:

Scientific thought is a development of pre-scientific thought. As the concept of space was already fundamental in the latter, we begin with the concept of space in pre-scientific thought.

Alfred North Whitehead in his *Process and Reality* (Griffin and Sherburne, 1979) gives a succinct explanation of scientific formalism in the light of his idea of functional ontology upon which the search and discovery of scientific truth and empirical observations are launched. In this regard Whitehead writes:

The ontological principle asserts the relativity of decision; whereby every decision expresses the relation of the actual thing, for which a decision is made, to an actual thing by which that decision is made. It constitutes the very meaning of actuality. An actual entity arises from decisions for it, and by its very existence provides decisions for other actual entities which supersede it. Thus the ontological principle is the first stage

in constituting a theory embracing the notions of ‘actual entity,’ ‘givenness,’ and ‘process.’ (1979, p. 43)

Barrow (1991, p. 13) sees the divine depth of oneness in his theories of “everything” from the Judaeo-Christian point of view, in his following words:

Different modern cultures have been variously influenced by their religious heritage in coming to a satisfying picture of natural laws. In the Judaeo-Christian West, the influence of the divine lawgiver has been paramount. The laws of Nature are the dictates of a transcendent God. They enshrine faith in the existence of an underlying order to things. They sanction the investigation of Nature as a secular activity. They outlaw Nature gods and the potential conflicts of polygamous legislation in the Universe.

These words point out the search for conscious oneness as the unique core of mankind’s ultimate aspiration in life, science, and experience. Conscious oneness forms the ineluctable reality of the universe for all. On this point and in terms of the kinship that the world establishes with God as active creator in human faculties, Bruteau (1997) writes:

If you can see the God you love present in, even as, this world, then feel that union and rejoice in that. And be active in it, contribute to it, participate in the building, in the artwork, in the healing, in the understanding. This is where Reality is. You yourself are both a member of the Finite and a member of the Infinite ....

### ***1.2. The nature of conscious oneness in Islam***

In Islamic intellectual thought the quest for the ultimate meaning and explanation of reality has always been entrenched in the oneness of God and in the relationship of the divine law with the world-system. We will refer to this quest in this book as mankind’s rise toward moral consciousness in the framework of conscious oneness. The history of social transformation toward a good society is thus a study in human consciousness to know the ultimate reality (Lucaks, 1817).

Regarding the precept of interrelationship between divine oneness as conscious oneness and the world-system that the epistemology of conscious oneness builds and explains in the order of organic unity, writes Marmaduke Pickthall:

Islam is a worldly religion which considers first the worldly affairs of humanity, then the Hereafter that is an eternal continuation of the worldly life. It is difficult to believe that man can be saved in the Hereafter without being saved in this world. To be saved in the Hereafter without being saved in this world is simply unthinkable. The sensible approach is to follow the way shown to us by Prophet Muhammad. When his wife, Aishah was asked by a Companion about the Prophet’s daily conduct, Aishah replied that the conduct of the Prophet was the *Qur’an*, which is the guidance from God and for which Muhammad was given authority by God to interpret. That is why his conduct was the most exemplary expression of human conduct. (2005, p. 22)

The above quote points out the essential place of the *Qur'an* and the guidance of the Prophet Muhammad (*Sunnah*) in Islamic epistemology. Upon this epistemology rests the structure of intellectual thought that in turn creates the Islamic worldview and the Islamic world-system. This worldview of “everything” is formed in the midst of the ontological oneness of God. It is translated into positive action through the *Sunnah* (guidance of the Prophet Muhammad) and the discursive medium of human intellect by participation into the knowledge and construction of the unified world-system.

In this way, between divine oneness, the guidance of the Prophet Muhammad, and the multidimensional scheme of things arises the interactive, integrative, and creatively evolutionary world-system of “everything.” Such world-systems are entrenched in learning out of their intrinsic participatory and complementary laws and relations as the sure signs of organic unity of being and becoming. Learning as phenomenological experience is thus not simply endowed to the human intellect. It is equally intrinsic in the order of things. It is subjected to search and discovery by human intervention.

Organic unity between diverse artifacts is understood in the framework of the functional ontology of conscious oneness. This methodology establishes the phenomenology of oneness through conception, formalism, and application that reshape the world-system of “everything” into organic unity out of their fallen state of differentiated structure. Such progressive states of organic unity in the scheme of “everything” are gained progressively by continuous learning in interaction, integration, and creative evolution (IIE) of the systemic entities.

In this explanatory field of formalism, using functional ontology to establish the ontic (evidential) state of being and becoming into particular states of the examined phenomenon, the example is of the earth in its causal linkage with cosmology (*Qur'an*, Chapter 13, *Ra'd*, Thunder). Likewise, none of the physical, social, and institutional laws stand independently. Over the grand unification between them all, there is the overarching divine law of unity of knowledge (monotheism). The universality and uniqueness of the divine law is proved by its status of unailing conception, formalism, and application to “everything.”

The view of the continuous and pervasive presence of conscious oneness as the character of universality and uniqueness of the divine law of unity of knowledge in “everything” can be gained from Figure 1.1. Figure 1.1 forms a closed system of interrelationships between the points A, B, C, D. But the points A and D are unbounded and open due to the super-cardinal nature of the stock of knowledge that is complete at these levels of epistemology. The interrelations between the relational entities returning back and regenerating continuously through A and equivalent to it at D, form the functional ontology of the system of relations (Maxwell, 1962; Gruber, 1993).



resulting universe out of these evolutionary learning relations between the mentioned points acquires a geodesic whose primal induction is by knowledge.<sup>1</sup>

The multidimensional systems and interactions, integration, and creative evolution of learning processes between them are signified at the point C in relation to the other points occurring in rounds of circular causation. The *Qur'an* (Chapter 13, *R'ad*, verses 1–5) mentioned earlier, exemplifies such kinds of multidimensional learning phenomena. The *Qur'anic* verses speak of cosmology, the function of heavenly bodies, the diurnal change, the earth with its topography, the pairing of the good things of life, and the diversity and temporality of every existence by the Will of God (i.e., governed by the divine law of oneness). These are signs of the ever-expanding and unraveling of the world-systems under their governance by conscious oneness.

### 1.3. Economics, finance, and the world-system

Of the diverse subsystems that are exemplified in extension by the above-mentioned *Qur'anic* verses there is the domain of economics and finance as they are embedded subsystems of the total world-system. Like “everything” else, this domain is governed by the same phenomenological model of conscious oneness, despite its specific and distinct problems. But the economy and finance are not differentiated from the other systems. That is because of the intrinsic nature of “pairing” by learning between the systems. The formal worldview of oneness as “paired” participation forming pervasive complementarities span across multidimensional connectivity and are explained universally and uniquely by the episteme of conscious oneness. This is the permanently abiding quest of all the world-systems irrespective of religious and cultural diversities.

This book is the study of such general-system formalism that embeds economics and finance with the diversely created world-system in which “everything” learns by organic pairing. The deciphering of such vast nexus of unifying relationship in reference to conscious oneness is the morality, ethics, and end-goal of a good society. This book will bring out the fact that indeed such multidimensional general-system conception, construction, formalism, and application, and inference there from, are empirically

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<sup>1</sup> Geodesic is defined as the shortest possible line on a sphere, considering the universe is spherical (Wald, 1992). This minimal distance is given by the covariant tensor (Einstein Lawson, 1954b),  $ds^2 = g_{ik}dx_i dx_k$ . But as it can be deduced in this book, the distance is continuously variable under the impact of simulation by knowledge. Thus the knowledge–time–space structure of the universe is not spherical. Hence the geodesic is defined not on a sphere but on relational nexus.

viable, explainable. The book has empirical examples to bring out these facts in relation to the logical formalism that arises from the phenomenological model of conscious oneness in relationship to economics and finance.

Within the domain of the embedded and unified nature of economics and finance in the generalized world-system governed by the phenomenology of conscious oneness are specific issues and problems that are studied in the same light. Among these issues are the nature of preference formation that results in social well-being and institutional structures; participatory development dynamics; money, finance and the real economy; and the various simulation models of unity of knowledge in terms of representative variables of microeconomics and macroeconomics; and the endogenous induction of all such variables by knowledge-flows that arise from the episteme of divine oneness carrying this unitary germ across learning processes. Some of these issues are examined in this book. The book also explains the theory of ethics and economics in the garb of social political economy. Empirical examination of ethics in economics and finance relating to intertemporal asset valuation is an original contribution for the Islamic scholars and Islamic banks to consider contrary to their prevalent received ideas of time-value of money, debt-financing, and segmented financing instruments. Thus a generalized approach to development financing using pooled construction of Islamic financing instruments is implied.

A critical approach to prevalent ideas and methods of Islamic economics, finance, banking, and development is adopted. At times, mathematical and quantitative methods are used. Likewise, the book also launches critical examination of mainstream economics from an epistemological side. This is followed by rigorous analytical scrutiny. The language of philosophy of science appears throughout the book.

The end result of the book is the formulation of logical formalism and a phenomenological model of conscious oneness that stand as evidence of the conceptual and practical use of the episteme of conscious oneness in real issues and problems. This theme is specified in this book with the study of economics, finance, and social political economy vis-a-vis the world-system.

#### ***1.4. Technical insight***

The quest for universality and uniqueness of an epistemological base in the sciences is a lasting aspiration in all people, religions, and cultures. Hubner (Dixon and Dixon, 1985) refers to this quest as the viewing of history in respect of system-ensemble. Capra (1983) refers to it as the view of life as system. Primavesi (2000) refers to it as the ghaia of life and experience.

The fact of unification of knowledge and of knowledge-induced entities forming unified system-ensemble in diverse multidimensional domains was recognized by Kant. Kant (1949a, 1949b, p. 261) wrote:

Two things fill the mind with ever new and increasing awe and admiration the more frequently and continuously reflection is occupied with them; the starred heaven above me and the moral law within me. I ought not to seek either outside my field of vision, as though they were either shrouded in obscurity or were visionary. I see them confronting me and link them immediately with the consciousness of my existence.

In the epistemological foundations of economics and finance the treatment of the natural law of liberty establishing balance and justice in the medium of exchange is well known. Smith (Raphael and MacFie, 1984, p. 235) remarked on this ethical phenomenon as a divine act in the following words:

The universal benevolence, how noble and generous soever, can be the source of no solid happiness to any man who is not thoroughly convinced that all the inhabitants of the universe, the meanest as well as the greatest, are under the immediate care and protection of that great, benevolent, and all-wise Being, who directs all the movements of nature; and who is determined, by his own unalterable perfections, to maintain in it, at all times, the greatest possible quantity of happiness.

Thus the emergence of the field of social political economy requires the endogenizing of morality and ethics into critical variables of such a system of transformation from the positivistic world-system of differentiation into a unified world-system. This conception is all the more important today in redefining globalization and global future from the viewpoint of an interdependent global order with a new epistemology of ethics and social political economy (Koizumi, 1993; Henderson, 1999).

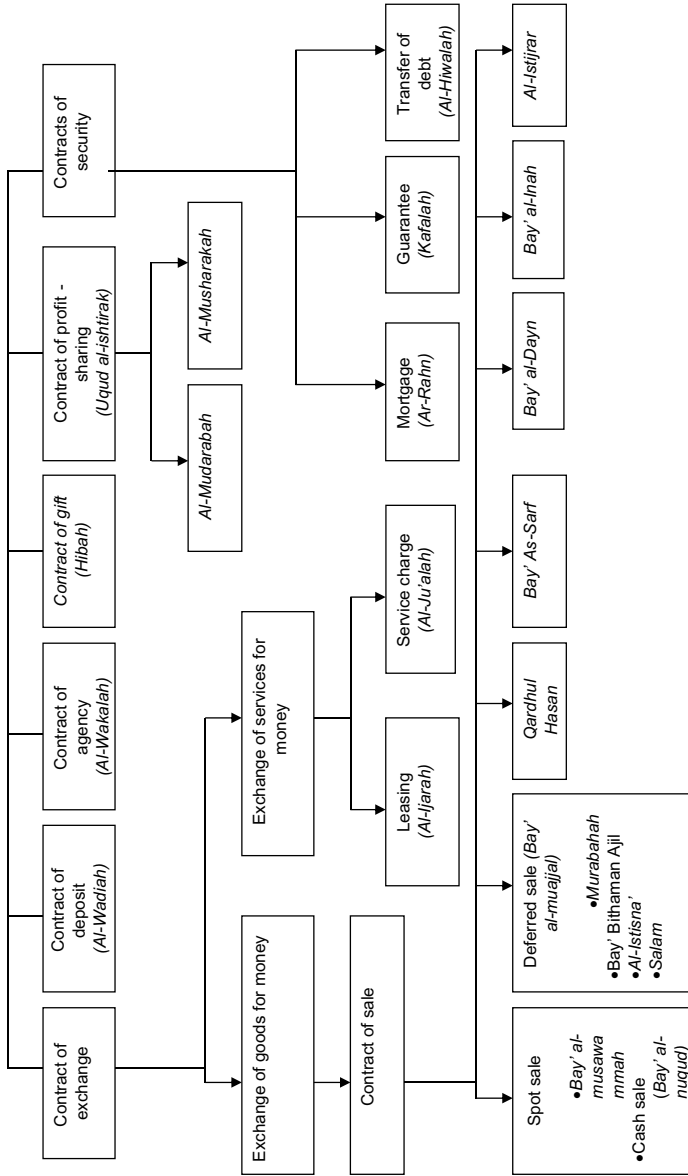
In the end, this book is not about a crass treatment of the theme of Islamic economics and finance or anything like that. Contrarily, the book being a rarity of its kind, except those by this author published elsewhere, is a technical and in-depth treatment of the moral and analytical foundations of Islamic economic, finance, social, and scientific thought in comparative study with mainstream scholarship in these areas. The book does not give an overview of financing and economic instruments as is usually found in most pedagogical writings in this area.

### ***1.5. A technical digression on the financing instruments and funds***

To elaborate on this point at a technical level, the overview of the pedagogical approach is to cover the legal (*shari'ah*-compliant) perspectives of the financing instruments given in Chart 1.1. On the other hand, Chart 1.2 presents the substantive nature of the systemic interrelations between the financing instruments. These instruments are taken up in a summary form for explaining the essence of the money-finance-real



Chart 1.1. General framework of Islamic financial contracts



Source: Reproduced with permission from Abdul Ghaffar Ismail (2010)

**Chart 1.2. The interactive pooled fund idea (Mufeedhul A. Choudhury, 2009) in money, finance, and real economy interrelations**

Financing instruments		1	2	3	n		(1.1)
Available Funds		Interflow of Funds				fund-retention	Equations of balance
1	$X_1$	$X_{11}$	$X_{12}$	$X_{13} \dots$	$X_{1n}$	$x_1$	$X_1 = \sum_{j=1}^n X_{1j} + x_1$
2	$X_2$	$X_{21}$	$X_{22}$	$X_{23} \dots$	$X_{2n}$	$x_2$	$X_2 = \sum_{j=1}^n X_{2j} + x_2$
3	$X_3$	$X_{31}$	$X_{32}$	$X_{33} \dots$	$X_{3n}$	$x_3$	$X_3 = \sum_{j=1}^n X_{3j} + x_3$
.	.	.....					
.	.						
n	$X_n$	$X_{n1}$	$X_{n2}$	$X_{n3} \dots$	$X_{nn}$	$x_n$	$X_n = \sum_{j=1}^n X_{nj} + x_n$
Pooled Fund $X = \sum_{i=1}^n X_i$		$X = \sum_{i=1}^n \sum_{j=1}^n X_{ij} + \sum_{i=1}^n x_i$					

economy participatory linkages. This latter case of systemic participation, including in it both socio-scientific participatory interrelations between representative variables, agents, and institutions and their complex interrelations, is the sure way of reading the Signs of God as the oneness of the divine law and its functional ontological actions and responses in and from the world-system of extensive diversity. This epistemological treatment brings out the universal and unique general-systems perspective of studying any issue and problem in the socio-scientific world-system. Within this world-system, and by means of the universal and unique epistemological methodology of the substantive kind, the nature, issues, and problems of Islamic economics and finance are studied as an interactive and integral dynamic subset at the highly intellectual level.

In Chart 1.2 the following symbols are defined:

$X_{ij}$  denotes the  $i$ th financing-instrument fund combining with and augmenting  $j$ th financing-instrument fund,  $i, j = 1, 2, \dots, n$ , as in Chart 1.1. Thus the segmented funds idea by their specific categories directed into the capital market as implied in Chart 1.1 is annulled. This traditional *shari'ah*-compliant idea is replaced by a free movement of funds across interactive financing instruments in the Pooled Fund idea given by Mufeedhul A. Choudhury (2009). This alternative is fully acceptable under the purpose and objective of the *shari'ah* (*maqasid as-shari'ah*), though not by *shari'ah*-compliance as a *fiqhi* (interpretive) idea. *Fiqh* means interpretation of *shari'ah* rules by *shari'ah* scholars. These rules have proven to be traditional ones (Asad, 1987).

$x_i$ ,  $i = 1, 2, \dots, n$  are funds that are retained in the specific financing-instrument funds.

The interactive and integrative nature of the above kind of augmentation of funds is further explained by the dynamic coefficients ( $a_{ij}$ )-form of the input–output type matrix in [Chart 1.2](#) in the light of the social learning properties of participation that we will discuss extensively in this work. This is a theme that remains foreign in received Islamic economics and finance, which knows only of time-dynamics<sup>2</sup> and not of the learning dynamics that centrally influences the participatory system of interrelations ([Parsons and Smelser, 1956](#)).

$$a_{ij}(\theta) = \frac{X_{ij}(\theta)}{X_j(\theta)} > 0; \text{ for each } i, j = 1, 2, \dots, n \quad (1.2)$$

These coefficients indicate the quantity of funds that interrelate between ( $i, j$ ) financing instruments per unit of the total funds augmented in the  $j$ th financing instrument. Their positive values imply the degree of desired interlinkages (complementarities signifying unity of knowledge and its induced  $a$ -coefficients) between the interacting and integrating funds by financing instruments along a dynamic path of flow of funds.

The undetermined alternating positive and negative signs of the cofactors of the dynamic input–output matrix ([Oxford University Press, 1989](#)) provide the early signal of the evolutionary equilibrium of the learning system under the critical influence of  $\theta$ -values. This analytical feature of the learning system we will study in some depth in this work.<sup>3</sup>

Thus we note the very centrally important presence of the  $\theta$ -inducing parameter of the variables. This is the learning parameter (knowledge variable) that arises from the interactions between all the variables leading to a convergent value in the system of interactions (integration). Thereby the system of interrelations between the variables evolves as the result of

<sup>2</sup> *Qur'an* (45:24): “And they say: ‘What is there but our life in this world? We shall die and we live, and nothing but Time can destroy us.’ But of that they have no knowledge: they merely conjecture.”

<sup>3</sup> The resulting dynamic coefficients matrix corresponding to expression (1.2) is  $X(\theta) = (\mathbf{I} - A(\theta))^{-1} \mathbf{x}(\theta)$ ; where the bold-italic letters indicate row vectors of the respective variables as shown here and defined earlier in expression (1.1);  $\mathbf{I}$  is the identity matrix;  $A(\theta) = [a_{ij}(\theta)]$  is the coefficients-matrix;  $(\mathbf{I} - A(\theta))^{-1}$  is the inverse matrix. Clearly, the equation,  $\sum_j a_{ij}(\theta) X_j(\theta) > 0$ , means that there is no specific pattern of alternating positive and negative cofactors of the  $[a_{ij}(\theta)]$  as otherwise proved by [Hicks \(1968\)](#). However, under conditions of evolutionary equilibrium that correspond to the assumptions of dynamic equilibriums of systemic unity in this work, the implications is that evolutionary equilibrium ([Grandmont, 1989](#)) will exist with alternating positive and negative definite forms of the cofactors of the matrix  $[a_{ij}(\theta)]$ . Thus, Hicks analytical conditions on the existence of equilibrium still hold up, but for evolutionary equilibriums.

the  $\theta$ -induction of these variables, and thereby of the entities, institutions (such as markets, Islamic banks and governments) and the agents underlying the variables and their relations. This last stage presents the evolutionary epistemology of the learning system in continuums of processes.

This work will focus greatly on the role that  $\theta$ -values play at the epistemological foundation of unity of knowledge and unity of the socio-scientific system and issues and problems in it. This is a perspective and highly analytical methodology that has not been embraced by Islamic economics and finance, despite its central role of monotheistic oneness as organic unity of the divine law in the theory and application of Islamic intellection in “everything.” Indeed, the analytical study of the  $\theta$ -induced system will be a major contribution of this work. It will be of deep analytical significance to both mainstream economics and finance theory and to Islamic economics and finance.



## CHAPTER 2

# *The Moral Foundation of Socio-Scientific Episteme*

### *2.1. The moral foundation of “everything”*

Oneness is the prime attribute of God. Divine oneness is the singular moral foundation of “everything” invoking socio-scientific intellection in the Islamic worldview. In this ontological sense, this concept of conscious oneness means that the ultimate and indivisible absoluteness and completeness of creatorship, knowledge, will and power over all things, rest with God alone.<sup>1</sup> Because God’s oneness belongs to the domain of purity (*Ikhlas*), removed from the material and cognized worlds, it marks the topological domain of the fullness and purity of the knowledge stock. It exogenously by itself creates, governs, and acts upon the created universes of all kinds, abstract, and evident. By itself, the precept of oneness of God is not causally affected by anything. It creates all but is never created of itself, or by any other.<sup>2</sup>

Oneness is the derived prime attribute of the divine law as the guidance and completeness of all laws. The divine law represents the act of God as the one who creates, sustains, and regulates all details of the universes – “multiverses.” Multiverses are universes that span the totality of the

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<sup>1</sup> In this regard, the *Qur’an* declares (2:255): “Allah, none has the right to be worshipped but He, the Ever Living, the One Who sustains and protects all that exists. Neither slumber nor sleep overtakes Him. To Him belongs whatever is in the heavens and whatever is on the earth. Who is he that can intercede with Him except with His Permission? He knows what happens to them in this world, and what will happen to them in the Hereafter. And they will never compass anything of His Knowledge except that which He wills. His Kingdom extends over the heavens and the earth, and He feels no fatigue in guarding and preserving them. And He is the Most High, the Most Great.”

<sup>2</sup> The *Qur’an* (112:1–4): “Say: ‘He is Allah (the) One. Allah: the Self-Sufficient Master, Whom all creatures need. He begets not, nor was He begotten. And there is none co-equal or comparable unto Him’.”

abstract and the unraveled reality of matter, mind, and numinous domains of reality. We thereby refer to the totality of all domains that exist uniquely and universally within the complete design of oneness of the divine law as “everything.”

Contrary to the idea of the theories of everything in theoretical physics (Hawking, 1988; Barrow, 1991), the divine law of oneness explains “everything” in terms of the universality and uniqueness of the divine law acting uniformly in extant and in every detail. Yet such details are explained as they are learnt in phases of knowing oneness that remains embedded in the order of things. The concept of oneness is therefore not numinous, as otherwise misconstrued by many scholars (Whitehead, Griffin, and Sherburne, 1979; Russell, 2001), and it is not corporeal as construed by others (Davis, 1990; Davis and Gribbin, 1992; Bruteau, 1997). The oneness of God in terms of the completeness and fullness of His knowledge in purity acts upon and functionally explains all details of experience through systemic learning. The formalism that underlies such a universal explanation of the divine law is referred to in this work as functional ontology (Gruber, 1993).

Oneness is the character of the carrier, which is the divine law prevailing in living experience. The carrier forms the grand spiritual and physical comprehension of the anthropic principle (Breuer, 1991). The anthropic principle of theoretical physics asks the question: Why is the universe created in relation to matter and mind? It then offers the answer that the universe is for knowing in terms of the principle of invariance of the physical laws. The spiritual and physical nature of the anthropic principle arises from the oneness of the divine attribute in relation to living experience. Such a meaning of the anthropic principle on the purpose and meaning of creation is to encompass the meaning of creation and life by the learning attributes of oneness in the order of things. An inspired saying of the Prophet Muhammad is this: *Allah's* knowledge remained as a hidden gem when He desired himself to be known to the universes. So *Allah* created the universes to unravel His Signs of unity in totality in the order of things.<sup>3</sup>

Thus, oneness of the spiritual and physical attributes of the overarching anthropic principle necessitates the medium of a divine conveyor to connect with the diverse universes in abstract, cognized, and explained ways. Here is the place of the Prophet Muhammad, who among many other prophets sent as great teachers of humankind, stands out as the completion of the universal purpose in relation to God, oneness, the

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<sup>3</sup> *Qur'an* (41:53): “We will show them Our Signs in the universe, and in their own selves, until it becomes manifest to them that this (the *Qur'an*, hence Tawhid) is the truth. Is it not sufficient in regard to your Lord that He is a Witness over all things?”

universes, and the purpose in the Great Event of the finality called the Hereafter (*Akhira*). The Hereafter is the completion and final unraveling of the stock of knowledge of oneness. The final completion of absolute knowledge stock is the same as in the primordial order of creation, which is God's ontology. But the primordial stock of knowledge of oneness cannot be unraveled to the universes for reason of balance and measure. Such primordial oneness is only learned incrementally out of the effort of experience premised on the knowing of oneness through the interpretation of the divine law as it plays out its attribute of oneness in the multiverses.

Oneness is the essential character of unity of the world-system. These are the multiverses with all details, as they are embedded in abstraction, cognition, and materiality. The oneness of the multiverses is derived from the epistemic origin of the oneness of the divine law in the light of the ontology of the oneness of God. The understanding of oneness of the multiverses in terms of explainable arguments forms the "engineering" or "functional" ontology of systemic learning.

The term used is functional ontology as opposed to metaphysical ontology, as was the latter case with Heidegger (Hofstadter, 1988). Functional ontology is of critical importance in developing a scientific phenomenology of unity of the world-system in relation to the oneness of God, the oneness of the divine law, and the oneness of the divinely ordained anthropic principle. The anthropic transmission in the Islamic worldview denotes the medium of guidance conveyed by the sayings and practices of the Prophet Muhammad. This medium is known as the *Sunnah*.

The fundamental epistemological foundations of the Islamic worldview are thus the *Qur'an* and the *Sunnah*. The secondary epistemic medium is the authority of knowledgeable men in Islam used to interpret the tenets of the divine law in the light of the *Qur'an* and the *Sunnah*. The oneness of God is conveyed to the multiverses through the *Sunnah* in reference to the *Qur'an*. Keeping in view the constructed essentiality of the unified world-system through continuous learning, the final realization of all-accumulated ultimate knowledge stock occurs in the Hereafter. Thus, the Hereafter is referred to as the Great Event in the *Qur'an*.

In the end, oneness marks the completion of knowledge and learning in the finality of the Hereafter, which is upheld as the complementary key precept along with the oneness of God.<sup>4</sup> The Hereafter as the Great Event conveys the actualization of all the world-system in the realm of unity of

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<sup>4</sup> The *Qur'an* declares (78:1–5): "What are they asking (one another) about? About the great news (Islamic monotheism, the *Qur'an*, the Hereafter), about which they are in disagreement. Nay, they will come to know! Nay, again, they will come to know!"



knowledge across the realms of abstraction, cognition, form, and practice.<sup>5</sup> Such is the divine light on “everything” made to shine through the revelation of the *Qur’an* and the place of the Prophet as the brilliant star in the universal message of oneness.<sup>6</sup>

## 2.2. *The comprehensive precept of oneness*

The comprehensive precept of oneness overarches all the components presented in the above section. The consequence then is a phenomenological methodology that makes the precept functional in experience in terms of abstraction, logical formalism, cognition, explanation, and application of oneness in “everything.” This means that the use of the metaphysical ontology of God’s oneness is replaced by its relational transference into the details of diverse multiverses through the divine law. The divine law is carried into the world-system of explanatory and organizational forms by the guidance of the *Qur’an* and the *Sunnah*. Subsequently, this foundational episteme explains the universes (multiverses) in details by the actions and responses arising from the cognition of the divine law in relation to the world-system and its subsystems (*a’lameen*). The functional ontology of abstraction, cognition, form, and application is thus derived by epistemic discourse to lay down the description and formalism of the unified world of matter and mind on the basis of the epistemological origin of divine knowledge of oneness. Description and formalism combine together to present what Russell (1903) refers to as Descriptive Geometry.

The precept of oneness is thereby extended by endless, pervasive, and continuous learning processes across and within the interrelated domains of “everything.” A learning world-system of unity of divine knowledge is generated. It extends to the Hereafter as the Great Event of unraveled finality of the final accumulated knowledge stock.

The knowledge–time–space dimensional universes (multiverses)<sup>7</sup> (Choudhury, 2009a) are thus closed by the equivalence of the originary

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<sup>5</sup> The *Qur’an* declares (28:77): “But seek with that which *Allah* has bestowed on you, the home of the Hereafter, and forget not your portion of lawful enjoyment in this world, and do good as *Allah* has been good to you, and seek not mischief in the land. Verily, *Allah* likes not those who commit great crimes.”

<sup>6</sup> The *Qur’an* declares (24:35): “*Allah* is the Light of the heavens and the earth. The parable of His Light is as a niche and within it a lamp: the lamp is not in a glass, the glass as it were a brilliant star, lit from the blessed tree, an olive, of the east nor of the west, whose oil would almost glow forth, though no fire touched it. Light upon Light! *Allah* guides to His Light whom He wills. And *Allah* sets forth parables for mankind, and *Allah* is All-Knowing of everything.”

<sup>7</sup> The *Qur’anic* exhorts knowledge of abstraction to ponder over creation (71:15): “See you not how *Allah* has created the seven heavens one above another?”

oneness that completes itself through the process of creatively evolutionary unifying multiverses at the Great Event of the Hereafter. All learning universes are thereby open entities in the open worldly domain of learning. Yet the total *Qur'anic* universe in the correspondence between the penultimate Beginning and the End with the world-system in between is a closed and self-actualized largest universe from the origin to its final unraveling of the fullness of divine knowledge of oneness of God at the end.<sup>8,9</sup>

### ***2.3. Invoking Islamic economics and finance in the phenomenology of unity of knowledge: an early exploration***

The development of a comprehensive phenomenological methodology along with its logical formalism in the form of the functional ontology of the meaning of oneness is the first objective of this book. Second, this formalism is then applied to various interconnected issues of Islamic economics, finance, society, and science as part of the domain of “everything.”

The systemic nature of learning in oneness between these embedded domains can be properly referred to as the study of Islamic political economy and world-system. It is taken up in this work in the light of the precept of oneness understood in the comprehensive systemic sense. The moral foundation of conscious oneness is thereby fused with the theory of Islamic economics and finance. Conceptual, empirical, and critical intellection in the light of the theme of moral foundation of conscious oneness is rigorously studied.

The Islamic understanding of many of the concepts of political economy and world-system, and thereby of its embedding in Islamic economics and finance when premised on the episteme of conscious oneness, reveals sharp differences with the mainstream ideas that have penetrated Islamic economics and finance today. The differences are deep and irreparable because of the contrasting epistemological nature of this divide. The precept of oneness, which is foundational in the study of the Islamic methodology and worldview in “everything,” is uncompromising because of its methodological uniqueness and universality.

Such a universalizing foundation is denied by the mainstream scientific method, wherein dialectics arising by and from rationality axioms of

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<sup>8</sup> The *Qur'an* declares (92:13): “And truly, unto Us (belong) the End (Hereafter) and the Beginning (the Oneness origin of creation).”

<sup>9</sup> Hadith al-Qudsi (inspired sayings of the Prophet Muhammad) narrated well in Imam Ghazali's *Ihya Ulum-Id-Din* (Karim, undated):

competition, systemic independence, and methodological individualism distinctly oppose the premise of unity of knowledge. This work will thus bring out the nature of the new scientific method and its application to Islamic economics and finance according to the precept of divine oneness as the moral epistemological foundation.

## **2.4. Definitions and explanations**

### **2.4.1. Tawhid**

Oneness of God or Islamic monotheism is traditionally encapsulated in the *Qur'anic* term, *Ahad* (the Divine One) leading to the term *Tawhid*. But being so, the traditionalists have left the understanding of *Tawhid* to the metaphysical ontological realm. For a long time now the functional ontology of *Tawhid* and its relationship with the world-system have not been understood, and not pursued. Thereby, the understanding of *Tawhid* has not been taken up with the comprehensive meaning of divine oneness, specifically in terms of its relationship with the world and the Hereafter. Consequently, Islamic sciences ever since the time of the Islamic scholasticism went into repose.

### **2.4.2. Traditional understanding of Tawhid**

Traditionally, the ontology of *Tawhid* has been explained by three aspects (Taqi-ud-Din Al-Hilali, and Muhsin Khan, undated): First, *Tawhid al-Rububiyyah* means that *Allah* alone is the absolute lord of creation. In this, *Allah* is the creator and sustainer of the universes. Second, *Tawhid al-Uluhiyyah* means that none else in mind or form can be worshiped except *Allah* as the one and absolute in His purity having no form. Thirdly, the attributes of *Allah* are His own and cannot be exemplified by the worldly meanings of such attributes. The attributes of *Allah* (*asma al-husna*) are complete in meaning and cannot be extended by the rationalist faculties and human whims. But their moral meanings can be used in deriving laws, formalism, behavior, and standards of living experience.

Along with the ontological meaning of *Tawhid* is also taken up the indispensable place of the Prophet Muhammad in revelation and creation. The *Qur'an* equates the fellowship of the Prophet with the understanding of *Tawhid*.<sup>10</sup>

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<sup>10</sup> The *Qur'an* declares (3:31): "Say (O Muhammad to mankind), 'If you (really) love *Allah* then follow me. *Allah* will love you and forgive you of your sins.'"

### 2.4.3. *Tawhid as consciousness of the comprehensive divine oneness*

The above substance of the precept of *Tawhid* as oneness of *Allah* is foundational, despite the fact that its comprehensive understanding in relation to the world-system is left out as an open issue. Consequently, the terrain of Muslim thinkers has ignored to treat *Tawhid* within the relational universe of *Allah* as the Principal Cause of all Causation. The traditionalists have thus failed to explain the substantive meaning of *Tawhid* as unity of divine knowledge within that relational epistemological character of the world-systems and their diversities.

There have been differences in thought regarding the epistemology of *Tawhid* (*Qur'anic* meaning of monotheism) and the theme of world-system. Imam Ghazali (Marmura, 1997, p. 217) wrote:

Whoever combines both virtues, the epistemological and the practical, is the worshipping “knower”, the absolutely blissful one. Whoever has the epistemological virtue but not the practical is the knowledgeable [believing] sinner who will be tormented for a period, which [torment] will not last because his soul had been perfected through knowledge but bodily occurrences had tarnished [it] in an accidental manner opposed to the substance of the soul ... He who has practical virtue but not the epistemological is saved and delivered, but does not attain perfect bliss.

Likewise Ibn Al-Arabi (Chittick, 1989) wrote:

Two ways lead to the knowledge of God ... . The first way is the way of unveiling ... . The second way is the way of reflection and reasoning (*istidlal*) through rational demonstration (*burhan aqli*). This way is lower than the first way, since he who bases his consideration upon proof can be visited by obfuscations which detract from his proof, and only with difficulty can he remove them. [Slightly edited by author]

These niches in Islamic thinking have deep import in our understanding of *Tawhid* and the working of the world-system in the light of *Tawhid*. This cognitive totality establishes the comprehensive meaning of divine oneness as the moral foundation of “everything.” They lay down the groundwork for understanding the epistemological foundations of the interrelationship between the *Qur'an*, the *Sunnah*, and the world and the Hereafter as an indivisible continuity along the path of unity of knowledge. Failing this, the Muslim habeas corpus as a dynamic edict before *Allah* and the universe remains stillborn. *Tawhid* slumbers merely within the hearts of Muslims without having an external catalysis to shape the civilization dynamics. Prayer in such a state of *Tawhidi* solace tantamounts to self-righteousness, not necessarily socially activating power.

Misunderstanding also grew out of such individuated and isolated ways of using *Tawhid* as the Islamic pillar of faith. Prayers now mean looking simply at the inner solace and salvation. But such a wish is either individualism, as prayer is altruism, or it does not enable the deeper understanding of the vastness of *Tawhid* in terms of its *functional ontology*. I surmise that it is this failure to premise our experiences in “everything”

on *Tawhid* that has led to the functional epistemological emptiness of the Muslim for many centuries now.

Recent works in Islamic economics, finance, and social systems are glaring examples of the independence of these disciplines from the episteme of the *Tawhidi* worldview as it can be brought out as active knowledge for socio-scientific reconstruction. The study of Islamic economics and finance has thus become a grandiose program in mainstream economics and finance, an intellectual fiasco, nothing new and challenging (Choudhury, 2006a, 2008b, 2008c).

The precept of *Tawhid* as the worldview of “everything” has thus to be understood as extension of the traditional view into the realm of its dynamics of and with the world-system, and all these are to be taken up in the light of the Hereafter, which is equivalent to the episteme of *Tawhid*. This kind of a dynamic understanding of *Tawhid* generates learning processes and systems, within which, all entities are characterized as Signs of *Allah* (*ayath Allah*) in “everything.” The Signs of *Allah* are simply the constructive elements of multiverses. They are understood, deciphered, explained, and applied in the framework of oneness across systems. Consequently, nexus of paired entities and their combinations as ontological relations are formalized, applied, and explained.<sup>11</sup>

As well as, the description of the learning multiverses is characterized by continuity and pervasiveness over realms of pairing of the Signs of *Allah*. By this very nature of learning being continuous and pervasive in the knowledge–time–space dimensions, all universes of the *Tawhidi* world-system experience evolutionary episteme in the direction of heightened consciousness toward the knowledge of *Tawhid* and its formal intellection.

The Hereafter as the Great Event of completion of the *Tawhidi* knowledge stock in its unraveled form of the Beginning is now linked as the closure of the learning universes in the End, the Great Event of the Hereafter. The closure signified from the Beginning to the End through the process of the continuously and pervasively unifying multiverses represents the total consciousness of the evolutionary epistemic order of creative activity. The Hereafter is the only “optimal” state of the events and knowledge–time–space relationships that can be attained out of the endless labyrinth of evolutionary learning experiences. Such learning experiences arise as processes of advancing consciousness from, and moving toward, *Tawhid* in the “End as in the Beginning.”<sup>12</sup> The *Qur’an*

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<sup>11</sup> *Qur’an* (36:36): “Glory is to Him Who has created all the pairs of that which the earth produces, as well as of their own (human) kind, and of that which they know not.”

<sup>12</sup> On consciousness the *Qur’an* declares (59:21): “Had We sent down this *Qur’an* on a mountain, you would surely have seen it humbling itself and rent asunder by the fear of Allah. Such are the parables which We put forward to mankind that they may reflect.”

characterizes such a total creative evolutionary process of reorigination of advancing consciousness through the knowledge–time–space dimensions within the total closure from the “Beginning to the End” through the learning processes of the intra and intersystemic “everything.”<sup>13,14</sup>

The dynamic systemic understanding of the *Tawhidi* meaning in relation to the “Beginning and the End” and the learning universe of Signs of *Allah* in between them invoke the subtle language of scientific investigation. The analytical description of the multiverses<sup>15</sup> can now involve a multitude of methods. Yet these are all premised on, explain and converge into the unique and universal methodology of the comprehensive precept of *Tawhidi* oneness as understood in its dynamic functional form. Such a project of extending the wider meaning of *Tawhid* has not been understood traditionally until recently, except among the great Islamic epistemologists of scholasticism (Faruqi, 1977).

Consequently, the essential body of *Qur’anic* science has failed to emerge, leaving the Muslims for a long time now in imitative copying of received body of thought done elsewhere, and then attempting in fiasco to explain the *Qur’anic* verses in reference to such extraneous thought. The futility of such exercise can be seen by assigning primacy of episteme to extraneous fields and secondarily copying *Qur’an* into them (Shamsher Ali, 1990). A better work in this regard is by Al-Faruqi (1982).

An example of this failed practice among Muslims is found in explaining in mundane ways the human reproductive process, and then copying the injunctions of the *Qur’an* into it. The example of the *Tawhidi* failure among Muslims was seen in Muslim History by the works of the Islamic rationalists as opposed to the religious epistemologists (Choudhury, 2006a). The question is this: How is the soul (consciousness) understood in the “paired” phenomenon of body and soul in the reproductive process?<sup>16</sup> The same question is extant on the issue of embedding

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<sup>13</sup> The *Qur’an* declares (27:64): “Or, who originates Creation then repeats it, and who gives you sustenance from heaven and earth? Say, ‘Bring forth your argument, if you are telling the truth!’”

<sup>14</sup> The ultimate stage of reorigination as optimal consciousness is explained in the *Qur’an* (30:27): “And He it is Who originates the creation, then He will repeat it, and this is easy for Him. His is the highest description in the heavens and in the earth. And He is the All-Mighty, the All-Wise.”

<sup>15</sup> Referred to in the *Qur’an* as *a’lameen* (1:2): “All the praises and thanks be to *Allah*, the Lord of the *a’lameen*.”

<sup>16</sup> The *Qur’anic* verses 23:12–23 unfolds the power of *Allah* over the corporeal explanation of creation and thereby invokes the primal centrality of *Tawhid* in “everything.” The soul (consciousness) is thus assimilated with the corporeal order to understand reality. Such an approach of endogenous morality in the pairing relations of creation existing as pairs is the essential approach of *Qur’anic* scientific method, which at the same time conveys the study of scientific consciousness in the order of “everything.”

knowledge of organic unity in the entities of “everything” to explain the universal pairing process of learning and creative evolution from *Tawhid* onto the world-system and onward to the Hereafter. This grand learning process marks the evolution by action and response in the very large closed phenomenological domain of relations governed by *Tawhid* (Beginning) to *Tawhid* (the End = Hereafter) through the medium of the world-system. Likewise, the same evolutionary system is marked by the epistemic learning in unity of knowledge from *Tawhid* (End = Hereafter) to *Tawhid* (Beginning = primordial) through the medium of the world-system.

For another form of explanation of scientific consciousness, one may refer to [Whitehead’s \(1979\)](#) masterpiece. Whitehead wrote on this theme in respect of the learning and unifying nature of the universe (p. 57):

The creative action is the universe always becoming one in a particular unity of self-experience, and thereby adding to the multiplicity which is the universe as many. This insistent concrecence into unity is the outcome of the ultimate self-identity of each entity. No entity – be it ‘universal’ or ‘particular’ – can play disjointed roles. Self-identity requires that every entity has one conjoined, self-consistent function, whatever be the complexity of that function.<sup>17</sup>

Imam Ghazali and Ibn Al-Arabi, mentioned earlier, are solitary but shining examples of comprehensive thinking on the *Tawhidi* learning worldview. [Imam Ghazali wrote \(Imam Ghazali, Karim, p. 247, Vol. 4, undated, slightly edited\):](#)

He (the sojourner in the path of knowledge) is (then) asked: How is He (*Allah*) the first and the last? ... How is He the open and the secret? The first is not the last and the open is not the secret. He (sojourner) said: He is the First in comparison with the things created as all things come from Him in seriatim one after another. He is the Last in comparison with the things that will remain, as they will return from stage to stage till they return to God. That is the end of their journey. So He is the first of the past things and He is the last of the future things. He is secret to those who are in the material world and who search Him by their five external organs. He is the Open to those who search Him in the spiritual world in their lighted lamps by the secret insight. This is the true Tauhid and it is now clear to them the cause of action is He.

Such a meditation is of the kind of reflective description of the universes that we intellect upon in extant across knowledge–time–space dimensions of the *Tawhidi* episteme.<sup>18</sup> We now turn to the idea of description of the universe and its *Qur’anic* manifestation. We first ask the question what is the universe? What then are the *Qur’anic* universes (*a’lameen*) in the light of the comprehensive tenets of *Tawhid* as divine oneness in relation to creation?

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<sup>17</sup> The term “concrecence” means unity between the entities of learning processes.

<sup>18</sup> *Qur’an* (3:190): “Behold! In the creation of the heavens and the earth, and the alteration of Night and Day, there are indeed Signs for men of understanding.”

### 2.5. Description of the universe in knowledge–time–space dimensions

The *Qur'an* relegates space and time to the primal essence of knowledge. Knowledge is both the essence of oneness and the characteristic of the unifying world-system and of their entirety of relations according to the precept of oneness.<sup>19</sup> So what is the structure of the universe according to this primordial essence, upon which, the space–time structure is constructed and interpreted?

The *Qur'anic* universe is structured at two levels: the macrocosm, which represents the entirety, and absoluteness of knowledge. This is the ontological realm of *Allah*, referred to in the *Qur'an* as *Istawa*.

### 2.6. The *Qur'anic* macrocosmic universe

The macrocosmic primal universe is nonconfigurative and nonmeasurable. It is only relational in nature, filled with the divine law of guidance toward establishing the substantive precept of unity of knowledge. In this domain we do not see or cognize *Allah*. The world-system realizes simply the essentials of the divine law at work, and this is combined with the guidance of the Prophet Muhammad (*Sunnah*). The latter extracts extended meaning out of the divine law of the *Qur'an*.

The meeting ground of the *Qur'an* and the *Sunnah* that comprises the fundamental epistemology in Islam is like the meeting of ocean waters with the shores. Without this embankment the ocean waters would overflow the planet earth making life impossible. Thus the majestic *Qur'an* is not revealed onto the mountain, but to the heart of man, meaning to the Prophet, and is thereby explained through the prophetic guidance to all.<sup>20,21</sup>

The essentially nonconfigurative and pervasively relational character of the macrocosmic universe is the abode of the primal knowledge stock. This knowledge stock is created by *Allah* and remains undiminished. It is consciousness, the concrescence of essence (*fitra*) that never alters. Consequently, this macrocosmic primal universe creates all. But by itself it remains uncreated. It is the exogenous domain of causal relationships between essence, form, and impact on cognitive experience. The idea of the

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<sup>19</sup> *Qur'an* (76:1): “And they say: There is nothing but our life of this world, we die and we live and nothing destroys us except time. And they have no knowledge of it: they only conjecture.”

<sup>20</sup> *Qur'an* (59:21): “Had We sent down this *Qur'an* on a mountain, you would surely have seen it humbling itself and rent asunder by the fear of *Allah*.”

<sup>21</sup> *Qur'an* (42:52): “And thus We have sent to you (O Muhammad) a Revelation and Mercy of Our Command. You knew not what is the Book, nor what is Faith? But We have made it (the *Qur'an*) a light wherewith We guide whosoever of Our slaves We will. And verily, you (O Muhammad) are indeed guiding mankind to the Straight Path.”



macrocosmic universe is premised on the essence of the complete and absolute knowledge stock. It is not a linear aggregative structure of all that is under it in the microcosmic universe. It is complex, explainable in bits, but not exhausted of its fullness.<sup>22</sup>

The relationships between these universes are continuous and pervasive in nature. Hence, knowledge is permanently and continuously invoked in the delineation of forms, cognitions, actions, and responses between the world-systems of the microcosmic universe and the essence of *Tawhid* in the macrocosmic universe. Because the exogenously primal, complete, and absolute nature of the knowledge stock creates all relations that, in turn, creates forms and cognitions, explanations and applications in the microcosmic universe, and spans the macrocosmic universe, such a complete knowledge stock can be appropriately characterized as a supercardinal topology (Choudhury, 2007a). Topology is a mathematical category that does not require form and measure in it to explain analytical abstraction.

Topology encloses all possible combinations of mathematical sets of relational mappings (topological mappings). These are functions of the created worlds. But at the level of supercardinality, the functional relations remain “openly” embedded in all possible combinations of the divine law to establish the correspondence between the primal supercardinal topology of *Tawhid* and the equivalent supercardinal topology of the Hereafter.

The very large-scale universe extending from the open relational supercardinality of the primal order of *Tawhid* to the Hereafter, and in the reverse order, enabled by the process of the learning world-system of “everything” in the framework of unity of knowledge, all together establish the closed functional correspondences. The meaning conveyed here is that all the possible nexus of topological mappings between the supercardinal and the world-system are optimally completed “only” in the very large-scale universe. But the functional interrelationships between *Tawhid* and the world-system remain incomplete and ever expanding in the small-scale universes of “everything,” both of the evident, the abstract, and the numinous world-system.

An example here is the following: The *Qur’anic* scroll is fullest in the binary state of the book of good deeds (*illiyun*) and the book of unpardoned deeds (*sijjin*).<sup>23,24</sup> This happens because of the *Tawhidi*

<sup>22</sup> *Qur’an* (18:109): “Say: If the ocean were ink (wherewith to write out) the words of my Lord, sooner would the ocean be exhausted than would the words of my Lord, even if we added another ocean like it, for its aid.”

<sup>23</sup> *Qur’an* (83, 4–7): “Do they not think that they will be called to account? – On a Mighty Day, a Day when mankind will stand before the Lord of the Worlds? Nay! Surely the Record of the Wicked is (preserved) in Sijjin.”

<sup>24</sup> *Qur’an* (83:22): “Nay verily the Record of the Righteous is (preserved) in *Illiyun*.”

supercardinality of the primal stock of knowledge (divine law = *Sunnat Allah*) that states the fact; and in the supercardinality of the Hereafter that manifests the fact. But from these optimal categories are derived the binary processes of endogenous morality and ethics that remain permanently embedded in the learning world-systems. With this kind of learning interrelationships derived from the ideal category, a theory of social positioning of many things – man, society, machines, and artifacts – can be formalized.

Of these specific areas of studies is the treatment of Islamic economics and finance as an embedded subsystem of Islamic political economy and world-system. The moral foundation of conscious oneness in the Islamic “everything” impacts upon all specific subsystems and the problems that they excite for investigation. The treatment of Islamic economics and finance thus lies within the embedded nexus of “everything,” and is thereby governed by the universality and uniqueness of the *Tawhidi* episteme.

### 2.7. The Qur’anic microcosmic universe

The *Qur’anic* microcosmic universe is a topology of relational processes premised on learning in unity of knowledge as derived from the supercardinal order mentioned above. The emanating relational processes denote knowledge-flows out of the knowledge stock, only to return back to the knowledge stock in the Hereafter, through the accumulative experiences of learning across “everything” (the known and the unknown). While the knowledge stock is nonconfigurative and nonmeasurable, the knowledge-flows are measurable and configured, generated and engineered, according to the use of functional ontology. The realism of the eternal is thus encapsulated in the order of worldly forms, cognitions, and relations along the never-ending evolutionary epistemology of unity of knowledge and the world-system.

Such a world-system takes its existential formal depiction, cognitions, and evidences (“ontic” according to Heidegger, 1962) as a result of the knowledge-embedding and knowledge-induction. The result is endogenizing of all state variables, policy variables, and functional instrumentation of these entities by knowledge-flows. Conversely, all emergent knowledge-flows premised on the fundamental episteme of divine oneness are regenerated by the states of the learnt world-system moving dynamically toward unity of knowledge. Learning processes in world-system emerge like bubbles, one from another. They endlessly form widening nexus of ever-advancing domains of “everything” learning in oneness by the dynamics of complementarities and participation *res-extensa*.

Bruteau (1997, p. 179) beautifully puts this endogenous learning experience between God and the worlds:

If you can see the God you love present in, even as, this world, then feel that union and rejoice in that. And be active in it, contribute to it, participate in the building, in the artwork, in the healing, in the understanding. This is where Reality is. You yourself are both a member of the Finite and a member of the Infinite ...

The structure of the learning universe endogenously driven by induction of knowledge-flows emergent from the episteme of oneness comprises dynamic nexus of processes. Bundles of these emanate from other ones as bubbles. This is the idea of circular causation between the entities and their relations, where nothing is independent of another. They are all complementary to each other in the structure of the microcosmic universe. Indeed, the microcosmic universal structure is just such a pervasively and continuously regenerated extant of knowledge-flows and of their endogenously induced cognitive forms and relations filling up the universe. They exist and emanate from the Signs of *Allah* and become the pedestal of progressively expanding designs of the unified world-systems *res-extensa*.

The circular causation relations *interrelating* and regenerating diverse elements of the knowledge-induced world-system manifest unity of knowledge in the world-systems by way of continuous and pervasive complementarities everywhere. These together become the measured artifacts of the Signs of *Allah* in the order of “everything.” They are foundationally and instrumentally driven by the science of the *Qur’an* and the *Sunnah* in the light of *Tawhid*.<sup>25,26</sup>

The formalism of circular causation is of central importance in the socio-scientific study of unity of knowledge and its induced world-system. The formal form of the simulation equations describing interconnectedness between the selected variables and the knowledge-flows emanating from the epistemology of unity of knowledge will be used extensively throughout this book. It is therefore appropriate to introduce this method at this point. The simulation problem involving circular causation between the selected knowledge-induced variables in terms of the episteme of unity of systemic knowledge is formalized in the following way:

$$\text{Simulate}_{\mathbf{x}(\theta)} W(\mathbf{x}(\theta)), \text{ the well-being function} \quad (2.1)$$

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<sup>25</sup> *Qur’an* (65:12): “*Allah* is He Who created seven Firmaments and of the earth a similar number. Through the midst of them descends His Command: that you may know that *Allah* has power over all things, and that *Allah* comprehends all things in His Knowledge.”

<sup>26</sup> *Qur’an* (65:11): “An Apostle (Muhammad), who rehearses to you the Signs of *Allah* containing clear explanations, that he may lead forth those who believe and do righteous deeds from the depths of Darkness into Light ...”

Subject to the circular causation relationships between the elements of the vector  $\{\theta, \mathbf{x}(\theta)\}$ :

$$\mathbf{x}_i(\theta) = f_i(\theta, \mathbf{x}_j(\theta)) \quad (2.1')$$

Thus, each variable depends on the rest first in the actual case of the positivistic evaluation. This phase then leads to the normative reconstruction of positivistic results of estimation of relationships between the selected variables in the light of the episteme of conscious oneness now taken up in a system relational meaning.

$\mathbf{x}_i$  denotes the vector of elements of the full vector variables  $\mathbf{x}(\theta)$ .

$\mathbf{x}_j(\theta)$  denotes the vector of elements of the full vector variable except the  $i$ th element.

$i, j = 1, 2, \dots, n$  number of variables.

$$\theta = F(\mathbf{x}(\theta)) \equiv W(\mathbf{x}(\theta)), \text{ by identity of forms} \quad (2.2)$$

Thus, while  $W(\mathbf{x}(\theta))$  is of conceptual value,  $F(\mathbf{x}(\theta))$  assumes an empirical form.

The meaning and evaluation of  $\theta$  in its two forms are explained below.  $\theta$  appears in the functional ontological system of relations in two ways. First, the primal  $\theta$  is not a measured value. It is simply discoursed knowledge derived in reference to the epistemic origin of *Tawhid* according to the *Qur'an* and the *Sunnah*. Thus, at this level,  $\theta$  represents the derivation of rules and functional instruments from the *Qur'an* and the *Sunnah* that would subsequently enable the phenomenological formalism of functional ontology in constructing the knowledge-induced world-system in the light of unity of knowledge. The rules and instruments so derived from the *Qur'an* and the *Sunnah* are discoursed in the learned society.

*Tawhid* and its relationship with the world-system are represented in our study as the supercardinal (nondenumerable and nondimensional) topology (Rucker, 1983, pp. 273–286). *Tawhid* stands for the completeness and absoluteness of the conscious oneness in the divine law in respect of its meaning and implications in various issues and problems of the world-system. This primal origin of knowledge includes both the derived rules and the instruments, that is, ways of application and implications of conscious oneness in the world-system.

Thus, the primal  $\theta$  is derived from the *Qur'anic* law (*Sunnat Allah* =  $\Omega$ ) first through the *medium* of the *Sunnah* (S) that enables the *Qur'anic* understanding in its proper context. Second, the combination of the *Qur'anic* law along with the *Sunnah* (now combined as  $(\Omega, S)$ ) is rendered to the learned discursive process to yield our experiential understanding of the primal knowledge for gaining conception, implication, and

application in the world-system on specific issues and problems in reference to *Tawhid*.

We symbolize the above relationship of the primal knowledge derived from the epistemic foundation of *Tawhid*:

$$\Omega \rightarrow_S \equiv ((\Omega, S) \rightarrow_{(\text{discourse})} \text{Primal } \theta). \quad (2.3)$$

The second level of  $\theta$ -values involves rank enumeration of such knowledge-values in accordance with the level of robustness of the sequence of socioeconomic vector variables in reference to the objective criterion of a well-being function. From the total database of such enumerated  $\{\theta, \mathbf{x}(\theta)\}$ -values, the circular causation relations become empirically viable. The enumeration of  $\theta$ -values refers back to the primal  $\theta$  and all that this involves in respect of *Tawhid* as the episteme of conscious oneness. This concept of organic unity is now spelt out in the system meaning through the above-mentioned simulation problem.

We symbolize by extension of the form (2.3) as

$$\begin{aligned} \Omega \rightarrow_S \equiv ((\Omega, S) \rightarrow_{(\text{discourse})} \text{Primal } \theta \rightarrow \mathbf{x}(\theta) \rightarrow \theta_{\text{ranks}} \\ \rightarrow W(\mathbf{x}(\theta)) \rightarrow \text{continuity} \end{aligned} \quad (2.4)$$

More on the substantive learning dynamics emanating from the knowledge-induced simulation problem will be studied throughout this book.

## ***2.8. Characterizing the knowledge–time–space dimensions of the Tawhidi world-system***

Time reads the creation of knowledge, and recursively in this circular causation relation, knowledge-flows are measured and configured over time. Furthermore, every socioeconomic, policy, institutional, and instrumental variables are induced by knowledge-flows so as to endow the consciousness to the learning system of the conscious universe of oneness. We thereby have the endogenous embedding between “body” and “soul” of a phenomenological concept and event in the recursive circulation of causal relations. Hence, while knowledge and time are recursively related in the world-system, after the primal creation of time by the divine command of the knowledge stock, so also, knowledge and space (the configuring variables and their relations and matrices) are endogenously interrelated and recursively evolved.

Finally, by the tripartite extensions, all the three dimensions, namely knowledge, time, and space, are endogenously embedded, continuous and pervasive, by circular causation relationships between them. The primacy is still of knowledge because of the primordial nature and closure of the

*Tawhidi* universal structure by the knowledge stock, which comprises the totality of the divine law of conscious oneness. Besides, the episteme of oneness at the beginning and end of any systemic learning process is invoked permanently to establish and continuously coevolve conscious oneness at the level of functional ontology and the evidential stage (ontic) of knowledge-flowing processes.

Therefore, as the tripartite circular causation between knowledge, space, and time proceeds on, the time variable generated is endogenized by knowledge-flows in it. Subsequently, the time variable so generated further marks the regeneration of emergent knowledge-flows, but only after reinvoking the episteme of conscious oneness.<sup>27,28</sup>

What is thus true of the knowledge–time relationship is also true of the knowledge–space relationship. Hence, in every learning process, knowledge remains primal but circularly connected with the coevolutionary dynamics of circular causation in the framework of conscious oneness. In the end, time becomes a knowledge-induced datum to record events across evolving spreads of learning nexus. Time alone is thus a recorder not a cause or an explanatory factor of events.

On the theme of systemic dynamics akin to circular causation, Imam Ghazali wrote (Marmura, 1997, op. cit., p. 158):

In brief, every event has a temporal cause, until the chain of causes terminates with the eternal celestial motion, where each part is a cause for another. Hence, the causes and effects in their chain terminate with the particular celestial motions. Thus, that which has a representation of the movements has a representation of their consequences and the consequences of their consequences to the end of the chain. In this way, what will happen is known ...

## 2.9. Internal dynamics of the learning process in unity of knowledge

Any complete process within the string of learning processes evolving out of a previous one(s) and into a subsequent one(s), and continuing on in perpetuity and pervasiveness of knowledge–time–space dimensions is characterized by three components. These are repeated along coevolution.

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<sup>27</sup> *Qur'an* (1:1): “Praise be to *Allah*, the Cherisher and Sustainer of the Worlds.” This is the all-pervasive invocation of the *Qur'an*.

<sup>28</sup> The very first verses of the *Qur'anic* revelation to the Prophet Muhammad are “Read! In the Name of your Lord Who has created (all that exists)” (*Qur'an* 96:1); “Read! And your Lord is the Most Generous. Who has taught by the pen. He has taught man that which he knew not” (*Qur'an* 96:3–5).

The components are the episteme of conscious oneness at the primal epistemological foundation; the functional ontology of the created world-system; and the knowledge–time–space continuity unto the span of the Hereafter, with continuous recalling of *Tawhid* substantively at the beginning of every emergent learning process. By this kind of evolutionary epistemology, the relational closure of the learning universe of *Tawhid* becomes complete in the sense of attainment of the supercardinality of the very large-scale universe.

Furthermore, the above component characteristics enable three properties of learning process to abide. These are first interaction, both institutional and intrinsic of systems across diversity of knowledge-flows together with their knowledge-induced possibilities.

Second, such interactions lead into consensus and equilibrium. Because of the universal systemic nature of this unifying experience from interaction leading to integration, we call the attained stage of consensus or systemic equilibrium as integration.

Thirdly, interactively generated integration is evaluated for consequences. Such postevaluation of the degree of systemic unity attained is done by a well-defined and well-being criterion, which is simulated subject to circular causation relationships between the variables and entities of the problem under study. The well-being criterion thus measures the simulated degree of systemic unity of knowledge attained via the interactive, integrative, and evolutionary learning processes.

The complexity of the nexus of coevolution of this type is repeated across systemic linkages. Everywhere, unity of systemic knowledge derived by the functional ontology of conscious oneness generates continuous and pervasive complementarities. Failing this in an actual decedent, and differentiated state of the issues and problems, the circular causation relationships between the variables and entities are normatively improved to generate the needed systemic complementarities (participatory system). The well-being criterion is thereby simulated in the light of the revised circular causation relations (Choudhury and Hossain, 2006).

The internal properties of IIE across learning processes in the *Tawhidi* universes and the methods involved in simulation of well-being by complementarities between the good things of life never end in temporal experience. Thus, there is no optimality in the temporal learning universe. There is only the universe of evolutionary epistemology in which the macrocosmic and microcosmic universes mingle and codetermine the structure of the total universe across knowledge–time–space dimensions of conscious oneness.

## **2.10. Describing the universe in mainstream science**

### **2.10.1. Albert Einstein's universe according to General Relativity Theory and its Tawhidi contrast**

The idea of space–time being embedded in a four-dimensional universe, and within it the relativity of time and events to local clocks in assigned geometrical inertial systems was a great feat in Einstein's Relativity Physics. Yet space was thought to be initially given and complete. Over this domain, the relativity of time acts in respect of events happening in reference to the assigned inertial system. But because space is initially assigned, and with which, time interacts in an evolutionary fashion in the four-dimensional space–time structure, the field of physics according to the General Theory of Relativity cannot be independent of substance (matter, light, energy, wave, and gravitation).

Even though Einstein contested the classical idea of necessity of material fields to explain physical events, he nonetheless accepted the wave theory (limiting velocity of light in space–time structure) of fields. Einstein writes (Lawson, 1954b, p. 155): “There is no such thing as an empty space, i.e. space without field. Space–time does not claim existence on its own, but only as a structural quality of the field.”

Another important matter that comes out of Einstein's description of the universe according to the General Relativity Theory is that there exist intimately coordinated changes between the inertial system and the variables of the space–time structure. Both space and time change as a result of any one of these changing. This phenomenon is of the nature of endogenous circular causation relationship between the composite variables of the problem under study that we examined earlier.

Despite such similarities between the Relativistic Principle of Simultaneity of events and their inertial system, substantive difference is injected into the structure of the universe with the induction of the inertial system and their events by knowledge-flows. The latter qualifies the entire system of variables and their inertial references by the embedded and endogenous presence of knowledge-flows in them.

The coefficients of the relationships between such variables in their inertial systems change in their random fields, as knowledge-induction proceeds on by simulation in the Interactive, Integrative and Evolutionary (IIE) framework of learning processes. Since there is circular causation between all knowledge-induced variables and entities, the metric or topological mapping in such a case of knowledge-pollination of all variables and reference processes takes the form of compound functions, rather than the distance-geodesic of Relativity Physics.



Now distance in Relativity Physics is controlled by the covariant tensor, which in its own very large-scale universe becomes closed by the World-Line. In knowledge-induced system, distance is a simulated objective function caused by circular causation between the variables in the light of their relationship with the knowledge-flows that define the end points of the variables evolving according to learning processes.<sup>29,30</sup>

### 2.10.2. Bertrand Russell's theory of logical relations

Bertrand Russell's (undated) theory of relationships between cause (termed as referent) and effect (termed as relatum) and vice versa is a significant method to explain the idea of circular cause-effect relationships. Besides, Russell's mathematical postulation is also an important one for constructing the functional ontology of the conscious universe of divine oneness, in which primacy is given to knowledge, just as wave theory is

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<sup>29</sup> In Relativity Physics  $ds^2 = g_{ik} \cdot dx_i \cdot dx_k$ , where  $g_{ik}$  is the covariant tensor corresponding to  $x_i$  and  $x_k$  in their inertial system of reference and all of these entities interrelate by the simultaneity principle of events and their inertial system.

<sup>30</sup> In the framework of conscious oneness, the objective function is obtained by simulating  $ds^2(\theta) = \Sigma_i A_{ij}(\theta) \cdot [(x_i(\theta) - x_j(\theta))]^2$ , subject to  $x_i(\theta) = f_i(\theta, \mathbf{x}(\theta))$  and  $\theta = g(\mathbf{x}(\theta))$ , with  $i, j = 1, 2, \dots; i \neq j$  with bold symbols denoting vector values and  $f$ 's are circular causation relations.  $\theta$  denotes the limiting measured value of knowledge-flow in a given learning process denoted by simulation as shown, and are subject to evolutionary dynamics of the IIE-processes. Since  $ds^2$  is evolutionary in nature according to the values taken by  $\theta$  as knowledge-flow generated by physical reality and perception on the observer, both of these are monotonic functions of conscious oneness. So as long as learning proceeds along IIE-processes toward heightened levels of consciousness of oneness,  $ds^2$  also varies. The universal structure is therefore not an optimal one as if bounded by the World-Line of Relativity Physics. Instead, the curvature is permanently evolving and is of the evolutionary type with all possibilities of pollination in ever-evolving circular causation learning processes. Elements of such pollinated nexus of interrelationships are denoted by compound functions between the coordinate variables and the evolving  $\theta$ -values. Consequently, the pollination coefficient,  $A_{ij}(\theta)$  is a function of the shifts caused in the compound functions due to the observational and perceptual conditions of unity of knowledge affecting  $x_i, x_j$  through the evolutionary  $\theta$ -values.

The compound functions and the circular causation relations in the absence of variable knowledge-induced perceptions and physical reality result in nonidentity mappings. Hence, the following relations explain the validity of the form of  $ds^2$  given above:  $\theta \rightarrow f_1 \{x_i\}; \theta \rightarrow f_2 \{x_j\}; x_i \rightarrow f_{12} \{x_j\}; x_j \rightarrow f_{21} \{x_i\}$ .  $\theta$ -induction of the variables is implied. Compound functions suggest that  $f_1 = f_{21} \times f_2; f_2 = f_{12} \times f_1; f_{12} = f_2 \times f_1^{-1}; f_{21} = f_1 \times f_2^{-1}$ . Therefore by substitution  $f_{12} \times f_{21} = f_2 \times [f_1^{-1} \times f_1] \times f_2$ . Because of continuous recursively generated  $\theta$ -values in circular causation relations shown above, the last relation has a knowledge-induced deflection that does not allow it to attain identity functional. The expression can be the identity map only if  $\theta = \text{constant}$ . Hence,  $f_{12} \times f_{21}$  is of the form  $ds^2$  shown above. The recursively generated  $(\theta, \mathbf{x}(\theta), t)$ -values denote events in knowledge ( $\theta$ )-time ( $t$ )-space ( $\mathbf{x}(\theta)$ ) dimensions *qua* contra-Einstein.

given primacy in the case of the concept of “field in physics.” In this regard Russell writes (undated, op. cit.): “In practice, a great deal of mathematics is possible without assuming the existence of anything.”

In the relational description of the universe according to mathematics, Russell’s postulation leads into problems. For instance, the “referent to relatum,” causality by a relationship, could be like the effect of exogenous policy variables to endogenous state variables of macroeconomics. But the converse is untenable. That is a relationship from endogenous variables to exogenous policy variables cannot be defined. If this argument is carried further, the relational universe divides into two separable parts, and causality between them is denied. Consequently, Russell’s universe by means of relations is incomplete and disjoint.

In the same way, if Einstein’s “referent” relates to variables by means of the axiom of methodological individualism in microeconomics, the converse, namely, from the markets and institutions of microeconomics, there is an abiding relationship of methodological individualism. This precept of microeconomics is of a reinforcing nature. Consequently, the economic universe becomes a domain of continuously evolving entities characterized by methodological individualism everywhere. At the final end, relations devolve over disjoint spaces of individuated entities. Consequently, the extended, that is, social relations become impossible in such a case. The economic and social universes remain disjoint and differentiated, and a comprehensive theory of the socioeconomic universe becomes dysfunctional according to the logical formalism of Russell’s relational categories applied now to economic and social consequences.

Likewise, Russell’s claim that mathematics begins from void, denying every kind of axiom, including the principle of unity of knowledge in it, is untenable in the *Tawhidi* scientific sense. If this was to be true there would not exist either deductive or inductive roots of reasoning in science. Consequently, causality is denied and the universe becomes a separated dot with no capacity to learn and evolve in any shape or form. The theory of relations is rendered null and void in such a case. The idea of infinity and cardinality in such a system of the void becomes meaningless as they cannot compare with anything.

Russell’s conception of a void universe from which mathematics can be constructed is really his idea of abstraction as the source of practical power. It takes up the form of the null set (space) in set theory. From this axiom is derived the opposite of the null set, which is the universal set (space). From the idea of the universal set is derived the conception of subsets of the universal set (space). Thus, the idea of addition can be the union of elements in the subsets, which might be zero as an element of certain subset, or nonzero as an element of some subset. Likewise, multiplication can be defined as the intersection of subsets of elements that either results in zero or nonzero numbers, but again belonging as elements

to certain subsets. In this way, the whole of the mathematical universe is defined by the axiom of nullity.

Russell's convictions are discounted in the episteme of *Tawhidi* conscious oneness for reasons that he looked at Islam very slightly and with a sneering attitude. Besides, Russell's claimed atheism removed him from any serious thought given to the idea of conscious oneness as in the *Qur'an*. Russell was disdainful of religion. He wrote (1990, op. cit., p. 13): "All definite knowledge – so I should contend – belongs to science; all dogma as to what surpasses definite knowledge belongs to theology."

### **2.10.3. The Islamic contrast in mathematical theory**

The Muslim mathematicians started the number system by the construction of "cipher" (zero) (Hakim, 1924). Cantor reconceptualized large cardinal number of sets by transfinite cardinals (Cantor, 1955). Hilbert was uneasy to accept the concept of the infinite in mathematics (Hilbert, see Bauer-Mangelburgh, 1967). These historical developments in the universal language of mathematics point out that the universe is explained by the minimal axiom around which the whole universe can be constructed.

But in any of such approaches to the philosophy of mathematics, the fundamental question is this: What does the divine order serve in the construction of conscious oneness in mathematical sciences? Around this question was pointed out earlier that topology is an appropriate method to study the *Tawhidi* methodological worldview. Within this methodological choice, we introduce the concept of topological supercardinality.

### **2.11. Conclusion: so, what is the universe?**

We have discussed in this chapter that the universe has purpose. The universal purpose cannot be satisfied by the episteme of rationalism and the civilization and institutions and faculties erected on rationalism. There are internal contradictions within the rationalistic approach. We have seen this in the case of Relativity Physics and mathematical logic, which lie at the foundation of modern scientific method. The problem of the scientific method is due to its constriction to the physical universe alone, and in that too, the universe is not depicted in the framework of continuous and pervasive learning by knowledge-induction and pairing (complementarities = participatoriness).

The same kind of a universe is comprehended by many Muslim scholars who take the scientific method as the episteme of their own self-reasoned *Qur'anic* explanation. This is both a self-defeated fiasco and a poverty of intellect that remains devoid of the relevance of the *Sunnah* and the history of revelation in the understanding of the *Qur'an*.

The project of conscious oneness as moral foundation of “everything” is required to remove the constriction to explain universality of being by the physical and social sciences. This project is accomplished by bringing in the epistemic foundation of divine knowledge. The result is not a casual conception. It destroys much of the outlook on which the scientific method, and hence its consequences, stands. The unity of the socio-scientific systems caused by the primal episteme of unity of knowledge makes the universe a learning nexus premised on unity of knowledge and continued on in and by its created causality with the world-system, up to the Hereafter.

The universe is then a purposive domain of relations in unity of knowledge along ever-evolving precincts of knowledge-induced world-systems. Any world-system is filled with learning entities, variables, and relations, in which the induction of knowledge makes morality, ethics, and values as central and substantive conceptual and empirical phenomena of cognition and materiality. They arise from the episteme of the divine law, and thereby bestow relational unity of knowledge to “everything.” The dynamics of such a knowledge-induced transformation are explained by logical formalism, for which the universe is purposeful, not accidental or based on the postulate of natural selection.

The universe is therefore the domain for learning conscious oneness in the abstract, cognitive, and material sense of contemplative holism governing “everything.” The *Qur’an* enables the conscious oneness to be relationally synergized with the artifacts of the world-system in order to establish and sustain such a consciously learning universe.<sup>31</sup> In it abides first the episteme of divine oneness, followed by the discursively determined knowledge-flows among the participants in “everything.”

The result is derivation of the systemic formalization to define the problem under investigation. This is also the stage of delineating the functional ontology in a discursive system by means of mathematical abstraction that arises from the epistemic knowledge of conscious oneness. The empirical viability of such formalism leads to evidential consequences. At this stage of the well-being criterion with circular causation to estimate

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<sup>31</sup> *Qur’an* (1:1–7): These verses provide the gist of the *Qur’anic* universe. The beginning is *Allah* as the conscious one, for whom thereby the world-system created by the divine law worship and praise. Such praise is the manifestation of conscious oneness in the order of things. The elements of such an order (*a’lameen*) are continuously and pervasively washed by the Signs of Allah (*ayath Allah*) existing in their countless diversities. The well-being of such a universe is filled with the divine mercy and beneficence. The greatest of this divine blessing is knowledge in terms of the divine law bestowed on the universe and its entities. Such knowledge-flow is specific for the universal purpose. The purpose of knowledge here is to decipher truth from falsehood. Truth triumphs over falsehood as the historical explanation of meaning, purpose, and change.

the attained degree of unity of knowledge, a positivistic picture emerges. The positivistic picture is then improved by simulation to construct a better structure of unified reality. This reconstructive stage of learning represents the normative phase of the problem under investigation. The learning processes thus emerge and continue through evaluation-by-simulation ad infinitum.

## CHAPTER 3

# *The Epistemic Universe of Islamic Economics and Finance*

Delineation of the epistemic universe of “everything” logically particularizes its concepts, properties, and implications to the universe of economics and finance examined from the episteme of unity of knowledge of conscious oneness. To undertake this task is to altogether derive a new world-system of economics and finance along with its foundation, theory, structure, and application. Islamic economics and finance as a branch of study of the conscious universe of “everything” takes its nature and implications from such a foundational episteme. We will now construct such a socio-scientific universe from its foundational episteme upward and deal with the first critical issues that become the constructive artifacts of the *science* of Islamic economics and finance.

In this light, the issues we will treat below are the following: investigation into the axioms of Islamic economics and finance vis-à-vis mainstream economics and finance. We will thus examine the consequential emergence of the theory of Islamic political economy and world-system.

What and how is the central role of morality, ethics, and values explained in Islamic economic and finance? What is the nature of the exchange mechanism in the emergent value-induced ethico-economic political economy and world-system study? What is the theory of value, price, and output in this system? What is the concept of equilibrium in the evolutionary learning processes of this system? How is socio-scientific transformation relating to economics and finance explained? What are the objective criterion of the learning world-system and the nature of its simulation in the midst of circular causation relations?

### *3.1. The precept of conscious oneness in Islamic economics and finance*

We commence answering the above questions first with an extension of the definition of Economy given by Gerard Debreu (1959). Choudhury (1999a) has extended Debreu’s formulation by introducing the learning parameter

of unity of knowledge. The ethically induced economy in the light of conscious oneness is a complex relational universe of its micro-parts. These comprise prices, quantities, incomes, resources, preferences and production menus, and technological choices. These are studied in relation to multimarkets and their agents represented by vector-variables of each of the above-mentioned categories. All of these categories of the representing variables are mutually interactive according to the interactive, integrative, and evolutionary (IIE)-learning processes (explained earlier) by the medium of knowledge-flows that emanate from the episteme of conscious oneness.<sup>1</sup>

One thus notes from the beginning that Islamic economics and finance is a study of endogenously knowledge-induced variables of given categories. This knowledge-induction is caused deductively by the inherent episteme of unity of knowledge, and is thereby, inductively evolved along the IIE-learning processes by the normative-*qua*-positivistic reconstruction of circular causation between the explanatory variables. This early formulation in this book explains that there is no relevance of the idea of “macroeconomics” as a segregated concept in Islamic economics and finance. Rather, the concept of macroeconomics is replaced by the idea of a study of economy-wide interaction between variables that are formed out of a complex system of unifying preferences (dynamic consumer theory) and menus (dynamic production and growth) of multimarket agents and institutions in terms of the process-oriented decisions that take place along IIE-learning. Within this complex interrelational system of actions and responses, institutions and policies like all other variables, become endogenously determined by their mutual interrelationships along the IIE-learning paths.

In the system sense, is it then possible to restrict analysis to the partial case of one system in the family of symbiotic systems? The answer is in the negative, for inter and intrasystemic interactions, integration and coevolution occur continuously and pervasively over learning fields of  $(p, q, y, R, W, P_e; Pr)$  (see footnote 1). The additional  $P_e$ -variable denotes policy-vector. But it is of an endogenous type like all other variables. Its

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<sup>1</sup> Debreu defines an economy as the topological set,  $E = E(p, q, y, R, W; Pr)$ . Here,  $p, q, y, R, W$  denote vectors of price, quantity, income, resource, and wealth, respectively.  $Pr$  denotes the vector of preferences in a multimarket agency situation. In the case of the episteme of conscious oneness, each of these variables is knowledge induced in the substantive sense of complementarities signifying learning by unity of knowledge between them. The continuity and pervasiveness of inter-variables complementarities is explained by simulation of the joint objective criterion of multimarket-agency through circular causation relations between the variables. Thus in our case, this substantive difference is brought out by the definition of the economy as a topology,  $E = E(p, q, y, R, P_e; Pr)[\theta]$ , with  $\theta$  denoting a probability limiting value of knowledge-flows in a given learning process or set of learning processes.

presence here separately as a vector-variable is for reasons of identifying those instruments that enable the effect of the episteme of conscious oneness to be driven in the socioeconomic domain. That is, while the primordial conscious oneness is the foundational episteme generating the knowledge-flows, these in turn are determined through the IIE-learning processes, which involve the combination of extracting unity of the world-system by abstract, applied, and institutional discursive actions. Subsequently, such discursive learning processes form the functional ontology that appears as formal analytical models having in them socioeconomic variables, policy instruments, and dynamic learning preferences. An example of such a policy-vector is the combination of the financial instruments of profit-sharing (*mudarabah*), equity-participation and joint venture (*musharakah*), and mark-up pricing in trade (*murabaha*).

The relevance of these development-financing instruments in Islamic economics and finance is tested out on the basis of their authentic derivation by discourse and choice of financing instruments arising from the episteme of oneness. The principal social consequences to look for here is whether the choices of financing instruments invoke the general system of *socioeconomic cooperation* – not merely commercial instrumentation to legitimate certain edicts of the Islamic law (the *shari'ah*).<sup>2</sup> The idea of cooperation here is that of systemic “pairing” between learning entities and their representative variables. On the other hand, a casual use of traditional interpretation of the *shari'ah (fiqh)* is seen as a cluttered legal perception limited to names of instruments and institutional practices.

Yet another policy instrument of the Islamic socioeconomic order is wealth tax (*zakat*). But since *zakat* is related with income and resources, and because the other variables in the vector  $(\theta, \mathbf{p}(\theta), \mathbf{q}(\theta), \mathbf{y}(\theta), \mathbf{R}(\theta))$  are endogenously interrelated, therefore, the *zakat*-variable (also all policy-type variables) is endogenously related with the other variables. This fact can be manifested in the Islamic economy by the policy of enforcing *zakat* as a development-financing policy having its specific functions.<sup>3</sup> The enforcement of such a policy increases the stock of resources, and thereby income, and ultimately wealth at the grassroots, and the demand and supply of basic needs at stable prices. The increase in income, wealth, resources, and stabilization of prices with the growth of demand and

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<sup>2</sup> *Qur'an* (49:13): “O mankind! We created you from a male and a female, and made you into nations and tribes, that you may know each other. Verily the most honored of you in the sight of *Allah* is (he who is) the most righteous of you. And *Allah* has full-knowledge and is well acquainted (with all things).

<sup>3</sup> *Qur'an* (9:60): “Sadaqah (also Zakat) are for the poor, and the needy, and those employed to administer the (funds), for those whose hearts have been reconciled, and in debt; in the cause of *Allah*; and for the wayfarer: (Thus is it) ordained by *Allah*, and *Allah* is full of knowledge and wisdom.”



supply of basic needs of life in turn increases disposable income for the payment of *zakat*. Such cycles of interrelationships coevolve along the IIE-learning path set by the trajectories arising from simulation of the well-being function, subject to inter-variable circular causation relations.

Thus the above-mentioned development-financing instruments and policy-variables form a part of the total IIE-learning process. Hence they are endogenously related in the total circular causation relationships across diversity of socioeconomic possibilities denoted by the simulated vector-variables. If such a system was to end with one market alone, the needed resources would not increase. Consequently, all the other variables would be constricted in their evolutionary dynamics. Eventually, the circular causation relations would collapse. The result would be reversion to the mainstream axioms of resource scarcity resulting in competition, self-seeking interest, methodological individualism, and the nonlearning dynamics of “economic rationality” found in optimization and steady-state equilibrium dynamics, at best over time but not knowledge. These conditions yield the uninteresting, noninnovative forms of linear aggregation of individuated preferences (menus) as datum, the variables being statistically independent of each other in order to enable linearized forms of estimation methods.

The systemic outlook of Islamic economics and finance therefore comprises multistages. The extent to which systemic interaction, integration, and coevolution can be realized is a function of simulated knowledge-flows. So if we are thinking of sustainable development, for instance, the IIE-learning processes continue on between the variables of the economic system *ad infinitum*. Such IIE-processes simultaneously link up with the financial system, with research and development (science), and with institutional programs and policies of the endogenous type, as mentioned above, and so on, even as learning on the basis of the conscious oneness proceeds. Such a kind of multistage learning world-system can be derived from the *Qur'an*. The learning system is covered horizontally (world-system) starting from the epistemic origin of *Tawhid*, and vertically (learning increasingly toward the Hereafter), and by confirmation of this learning process on the basis of conscious oneness and its reflection in the order of experiential reality. It is important to understand well the *Qur'anic* verses depicting this kind of dynamics in order to comprehend the universal abundance of “everything” with conscious oneness. This *conscious experience* that is extracted from the worshipping world-system by the human faculties is referred to in the *Qur'an* as *Tasbih*. It is equivalent to consciousness and is endowed to human being and genie (abstraction), and to every element of diverse world-systems.<sup>4</sup>

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<sup>4</sup> *Qur'an* (13:1–5).

**3.2. Formalization of the epistemic dynamics of Islamic economics and finance**

The nature of Islamic economics and finance in relation to the socio-scientific world-system is explained by expressions (3.1)–(3.4). The processes shown here depicting evolutionary learning of the *Qur’anic* universe are now explained below.

The relational nature of the knowledge-induced world-systems leads to a formalism of the *Tawhidi* general-system methodology. We consider this in a two-tier *Qur’anic* world-system denoted by  $F_1$  and  $F_2$ . Due to the circular causation of systemic IIE-processes we note expression (3.1) as

$$F_1 \Leftrightarrow F_2 \tag{3.1}$$

For each of  $F_1$  and  $F_2$  the *Tawhidi* learning methodology is applicable intrasystems. Thus

$$F_1: \Omega \rightarrow F\{\Phi\} \rightarrow f^*\{\Phi^*\} \rightarrow f_{11}\{\theta_1 \rightarrow f_{21}\{\mathbf{x}_1(\{\theta_1\})\}\} \rightarrow \downarrow \rightarrow f_{31} \text{New}\{\theta_1\} \rightarrow \text{continuity} \rightarrow \Omega = H$$

$W(\theta_1, \mathbf{x}_1(\theta_1))$  in repeated processes

(3.2)

$$F_2: \Omega \rightarrow F\{\Phi\} \rightarrow f^*\{\Phi^*\} \rightarrow f_{21}\{\theta_2\} \rightarrow f_{22}\{\mathbf{x}_2(\{\theta_2\})\} \rightarrow \downarrow \rightarrow f_{32} \text{New}\{\theta_2\} \rightarrow \text{continuity} \rightarrow \Omega = H$$

$W(\theta_2, \mathbf{x}_2(\theta_2))$  in repeated processes

(3.3)

Between expressions (3.1), (3.2), and (3.3) we obtain the intersystemic IIE-learning process across  $F_1$  and  $F_2$ . The result is depicted in expression (3.4). Arrows denote the progression of learning processes from one-system intra-stage point to the next *ad infinitum*. This continuity happens by the simulation of the criterion function  $W(\cdot)$  in respect of circular causation between the vector-variables along the IIE-learning processes. Simultaneously, along with the simulation of the criterion function, subject to circular causation, there comes about the vertical evolutionary dynamics. The symbol || denotes this evolutionary dynamics into multisystem stages of similar forms of IIE-learning processes. The result is the formation of knowledge-induced nexus.

$$\begin{array}{ccccccc}
 \rightarrow & \{\theta_1\} \rightarrow f_{21}\{\mathbf{x}_1(\{\theta_1\})\} \rightarrow \downarrow \rightarrow f_{31} \text{New}\{\theta_1\} \rightarrow \text{continuity} \rightarrow & & & & & \\
 & & & & & & \downarrow \\
 \uparrow & & & & & & \Omega = H \\
 \Omega: \rightarrow & || \quad || \quad || \quad || & & & || & & \uparrow \\
 \downarrow & & & & & & \\
 \rightarrow & \{\theta_2\} \rightarrow f_{22}\{\mathbf{x}_2(\{\theta_2\})\} \rightarrow \downarrow \rightarrow f_{32} \text{New}\{\theta_2\} \rightarrow \text{continuity} \rightarrow & & & & & \\
 & & & & & & \uparrow \\
 & & & & & & W(\theta_2, \mathbf{x}_2(\theta_2))
 \end{array} \tag{3.4}$$

**3.3. Islamic political economy within the conscious universe of oneness**

Two significant results can be derived from the definition of Islamic economy given above. First, Islamic economy and its associated financial system are subsystems of the wider interactive, integrative, and

evolutionary system that we call the learning of “everything.” The *Tawhidi* (oneness = unity of knowledge) methodology for diverse problems of each of these subsystems is unique and universal. Indeed, methods as artifacts are distinct from methodology. Methods as ways of studying particular problems can vary. Yet they must be consistent with the analytical implications of the *Tawhidi* methodology of conscious oneness. The emergent socio-scientific system under study may be called in rough term as the Islamic political economy, but with a substantive difference from the way political economy is understood in mainstream literature.

According to Staniland quoting Gilpin (1985) “Political economy ... means the reciprocal and dynamic interaction in international relations of the pursuit of wealth and the pursuit of power.”

Koizumi (1993) understands the field of interdependence in a holistic way by incorporating in his study an organic approach to the study of globalization and global interdependence as a possible unified system arising from knowledge of reality.

In the case of Islamic political economy, the presence of epistemology, ontology, and evidential domains in the light of conscious oneness and the Islamic law makes the study of political economy and world-system a hybrid of many interacting disciplines. Islamic political economy and world-system study the theme of production and distribution of wealth under conditions of power by studying the dynamics of conflict, power, and wealth as positivistic phenomenon. But this state is normatively changed into extensive cooperation by the principle of “pairing” (participation), or equivalently, by the pervasive principle of complementarities.

The variables, agents, entities, and relations of Islamic political economy are thereby ethically endogenized. The market exchange process, development and sustainability, institutionalism, and social transformation are learning continuously and pervasively. Hence only the process of social becoming defines the essence of relationships in these diverse areas. Markets, and thereby the economy, are continuously ethicizing as long as learning persists within the IIE-process model. In such a theoretical framework of political economy, the concept of preferences and menus used earlier in the definition of the Islamic economy, become dynamic, not datum. Contrary is the case in all of consumer theory and the theory of production and economic growth despite time-dependence as the only meaning of dynamics (Bertuglia and Vaio, 2005a, 2005b).

### ***3.4. The assumptions of Islamic economics are different from those of mainstream economics***

Briefly writing, the axiom of transitivity of preferences, upon which the entire postulate of economic rationality rests, is abandoned in Islamic economics and political economy. This is because preferences explain

continuously learning dynamics. Thereby no optimal state of resource allocation and choice can be possible. Information-flow like knowledge formation is dynamic and can never be optimized into full-information, as otherwise is the rationality assumption of economics. Even in imperfect competition microeconomics the assumption of bounded rationality and information exists (Simon, 1960).

Furthermore, with unity of knowledge replacing the state of “rationality,” knowledge of economic agents and institutions including markets, competition, and methodological individualism are replaced by social cooperation and systemic “pairing” (complementarities and participation). Consequently, resources are continuously generated in the direction of sustainable abundance of the good things of life (*hayath at-tayyabah* in the *Qur’an*). Thereby, the core problem of resource scarcity is replaced by sustainability of resource reproduction. In the end, the neoclassical postulate of marginal substitution and opportunity cost is replaced by the principle of pervasive complementarities (PPC). The neoclassical criteria of optimality and steady-state equilibriums are replaced by simulation of the well-being function by learning along the IIE-learning processes. Evolutionary learning equilibriums replace steady-state equilibriums despite their dynamic dependence on time in optimal control theory problems.

The idea of predictability by rational choice of mainstream economics is replaced by the state of the economic system as it *learns* without any preconditions except by reference to the episteme of unity of knowledge. Thereafter, socioeconomic and institutional corrections are applied to transform an ethically dysfunctional economy into an ethically learning one. This is equivalent to transforming an economic system premised on methodological individualism by progressive learning in unity of knowledge. Consequently, many of the objective criteria of mainstream economics are no more applicable because of the absence of optimality and economic rationality in Islamic economics and finance.

On the issue of risk and uncertainty, Islamic risk-aversion behavior is contrary to the mainstream one. Two factors are at work here.

First, the episteme of oneness implicates that risk and resource are diversifiable, and sustainability is attained by continuous and pervasive learning. Thus complementarities are extensive. Consequently, a participatory socioeconomic system is generated. In it, sharing and discursive institutional as well as universal “pairing” precepts abide. Diversification and participation in this sense lead into heightened information-flow, but not full-information. Optimality is replaced by simulation-by-learning. Hence the first and second order conditions of an expected utility function in risk and return do not exist. Every point of decision-making is influenced by complex interrelations with the interacting factors that endogenize change. Complexity denies full-information and replaces it by participatory learning behavior in the decision-making process. In it, the

learning environment introduces discursive action and knowledge-induced self-governing behavior along the IIE-learning processes.

Second, in the time-dynamic version of expected well-being function under simulation, we do not discount such a function by means of the time-value of money or its equivalents and derivatives found in mainstream financial theory. Likewise in cash-flow models, cash flows are estimated at the “nearest” possible point of occurrence of events such as cash flows under various states of the economy. The contingencies of the economy and projects under evaluation are determined with better foresight by the “nearness” of the events to evaluation points rather than distancing them into the future. Hence, expected cash flows are better determined in the probability sense of “nearness” of occurrence of events in the simulation learning model (Douglas, 1987).

This approach to asset valuation logically can avoid the time-value of money as a discount factor. Time-value of money is now replaced by the expected rate of change of cash flows “nearest” to the point of occurrence of the cash flows according to the various states of the economy and our knowledge of these. Islamic banks can then announce these rates in support of the contingencies and expected plans for better prospects in the light of the simulation that they undertake. Such announcements become true development expectations on reconstructing better futures. They invite depositors and shareholders to Islamic banks.

### 3.5. *The single principal axiom of Islamic economics and finance*

At the end we note that there is only one singular axiom of Islamic economics and finance. The derived implications are logical consequences of this principal axiom. The singular principal axiom of Islamic economics and finance is unique and universal for all socio-scientific disciplines in the intellection domain of “everything.” This axiom is the episteme of conscious oneness,  $\Omega$  in expressions (3.2)–(3.4) and its transmission to the functional world-system by means of the *Sunnah* of the Prophet Muhammad (S). Thus  $(\Omega, S)$  forms the super-cardinal topological episteme of Islamic economics and finance as for all world-systems in respect of every issue and problem. This chapter has now shown this to be the case in reference to core scientific facts and in Islamic economics and finance in particular, that is, in the field of Islamic political economy and world-system.

The functional ontological consequences of the epistemic axiom are:

- (1) Effectiveness of learning along IIE-processes;
- (2) Unity of the world-system by complementarities and participation as signified by the *Qur'anic* principle of “pairing”;

- (3) Diversification and resource abundance in dynamic basic-needs regimes of development and change;
- (4) Choice of goods, services, and markets according to enlightened consumer preferences and production menus that are positively generated and normatively changed by learning parameters on the Signs of Allah, that is in the good things of life conveying unity of the divine law;
- (5) Establishing fairness and justice by equitable distribution and balance in the consumption, production, and utilization of goods and resources;
- (6) Avoidance of waste (*israf*) in consumption and production;
- (7) Sustaining by learning, a productive and efficient economic and financial system in the substantial meaning of ethico-economic endogeneity of relations involving consumer preferences and productive menus;
- (8) Avoidance of the false and evil acts and uses of resources and goods;<sup>5</sup>
- (9) The overall simulation of the objective criterion of well-being in reference to circular causation relations and complementarities between the good things of life.

In the case of item (4) above we refer to such *shari'ah*-compliant bundles as dynamic basic needs of life. Examples of Islamic intellectual thought in this area are of the *shari'ah*-compliant goods recommended by Imam Ghazali (Karim, undated; Mehmet, 1997); by Imam Shatibi (Biraima, 1998/99); by Ibn Taimiyyah (Holland, 1982); by Imam Fakhruddin Razi in terms of his *ubudiyyah* theory of self-actualization (Noor, 1998).

Such a specification of goods is quite different from the kinds being recommended by Islamic banks today in the name of *shari'ah*-compliance. A good example is the so-called *shari'ah*-compliant certificates called "*sukuk*." Some Islamic learned (*ulemas*) have been found to legitimate "*sukuk*" for rich properties in the United Kingdom in favor of the British government's policy to raise funds from Islamic funds for retiring British deficit financing (HM Treasury, 2007). The greater well-being of the *ummah* is not focused upon in all these undertakings. Thus all that glitters is not gold when it comes to Islamic bank utterances on *shari'ah*-compliance, when such instruments fall short of Islamic development objectives. The science of interpretation of the *shari'ah* on matters of

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<sup>5</sup> *Qur'an* (7:58): "From the land that is clean and good, by the Will of its Cherisher, springs up produce, (rich) after its kind: But from the land that is bad, springs up nothing but that which is niggardly: Thus do We explain the Signs by various (symbols) to those who are grateful."

worldly affairs (*muamalat*) called “*fiqh*” has thus run into serious problems (Asad, 1987).

### 3.6. Primacy of market process in Islamic economics and finance

Markets remain primal in determining price, quantity, states of the social economy, and socioeconomic value. The state does not interfere except to correct cases of abject inequalities and instabilities as was the case with the social regulatory institution called *al-hisbah fil-Islam* during the time of Ibn Taimiyyah. A more overarching development of the social regulatory mechanism can be attained by interacting markets and governments in joint ventures with *shari’ah*-compliance for attaining participatory development futures. The role of governments, despite some key roles vested with it, remains marginal. Among the key roles are the establishment of *Tawhid* for the Islamic progeny; security of the state by defense and rule of law and order; the monitoring of monetary matters; guaranteeing basic needs to all including the safeguard of reason; and sustaining the future generation along the above directions. Yet we note that in each of these there is great scope for private and public sector cooperation. Hence, in the end, the government essentially looks into the inculcation and sustaining of the *Tawhidi* learning behavior in the nation. To this end can be added public-private sector cooperation for extension to the conscious world-nation of Islam, the *ummah*. Without this ultimate objective, the capacity of human sustainability will eventually fade away, despite invoking *shari’ah* rules in the limited scale of life, Islamic economics, finance and banking.

Primacy of the market process in the sense of its ethical change by learning along the IIE-processes is a keynote of the *Qur’an* in respect of the inexhaustible divine blessings, sustainability, and abundance bestowed by *Allah* on creation.<sup>6</sup> Read also the chapter on the Bee (*Nahl*) to understand the richness of diversity and life-sustaining abundance in creation. On self-governing behavior in the midst of exchange, the *Qur’an* invokes consciousness. Hence, learning is the essential foundation of behavioral, market, and institutional change.<sup>7</sup> Markets are characterized by behavioral change. Thus, when the *shari’ah* acts on worldly matters (*muamalat*), its

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<sup>6</sup> *Qur’an* (15:21): “And there is not a thing but its (sources and) treasures (inexhaustible) are with Us; but We only send down thereof in due and ascertainable measures.”

<sup>7</sup> *Qur’an* (2:267): “O you who believe! Give of the good things which you have (honorably) earned, and of the fruits of the earth which you have produced for you, and do not even aim at getting anything which is bad, in order that out of it you may give away something, when you yourselves would not receive it except with closed eyes. And know that *Allah* is Free of all wants, and worthy of all praises.”

function is to generate and sustain self-governing ethical change, as the above-mentioned *Qur'anic* verses point out.

### **3.7. Delineating market process in Islamic economics and finance**

The ethical learning behavior and its consequences on learning dynamics generated around events and variables make both the demand and supply functions to be random. They are not simply estimable by the probabilistic expectation method as usually done in managerial economics. In the Islamic case, dynamic changes in preferences render utility functions and its genre of mainstream welfare criterion functions to be null and void. Consumer indifference curves explained in mainstream economics do not exist as a result. Furthermore, since marginal substitution as opportunity cost of neoclassical substitution under the assumption of scarcity does not exist, therefore, there are no supply functions of goods, services, and factors of the mainstream type. Instead, demand and supply are notions governed by market preferences and menus. They are not measured geometrical surfaces and curves. In the simplest form, demand and supply of mainstream economics are relations between single price and quantity in exchange. Contrarily, there must necessarily be at least three variables in the ethically “paired” relations under the impact of unity of knowledge. The third of these variables is the ethicizing knowledge-variable.

In Islamic economics and finance, to learn about the point of market equilibrium and to know the implications of elasticity of demand and supply on revenue and profits, is first based on understanding the system of “pairing” relations in the market-institutional interaction along the IIE-learning processes. Demand curves and supply curves in multimarket equilibriums thus become learning curves with many evolutionary equilibrium points, from which, a most preferred equilibrium is selected by mutual market-institutional participation and discursive consensus on this issue. But by the very same force of learning on coevolutionary dynamics of the IIE-learning process, the market equilibriums are evolutionary learning equilibrium points. The probabilistic expected trajectory of such learning equilibrium points is referred to here as “History.” This trajectory charts the history of the past and the future along well-determined points of evolutionary equilibrium arising out of simulation around the occurrence of given events at their “nearest” points.

Furthermore, the consequences of dynamic basic-needs regimes of development of the Islamic political economy look at all other forms of regimes as aberrant realities. Such situations must be subjected to correction by the multidimensional objectives of well-being simulation, subject to



circular causation relations between knowledge-flows and the knowledge-induced variables in the light of the *Tawhidi* unified worldview.

### 3.8. A diagrammatic explanation of permanent instability of mainstream and supply curves

Figure 3.1 shows the learning effects on shifting demand and supply (d's and s's), and thereby, the nature of evolutionary learning equilibriums (E1 and E2) along the trajectory of History (HH). Enclosed in R is the random field of all variables, functions, and relations. Figure 3.1 is an oversimplification of essential factors underlying the whole endogenous relational argument presented above. A part of this is shown by the enclosure of evolutionary equilibriums (E1, E2) within their respective random perturbation field.

Details of the complexity underlying learning behavior cannot be shown in a two-dimensional Cartesian diagram due to the multivariate and multidimensional nature of the IIE-learning processes. IIE-processes render the inherent complexity to non-Cartesian analysis. One adopted method is the mathematical topological approach.

Note the elastic nature of demand and supply curves in a basic-needs regime of development. One notes as well that the notions of elasticity of demand and supply are untenable for static measurement. Elasticity coefficients are randomized by perturbations of the learning parameter ( $\theta$ ). Such learning elasticity coefficients simply simulate the spending decisions on the part of the consumer and producer, and thereby, determine the probabilistic expected revenues and consumer spending along the learning demand and supply functions by means of simulation along IIE-learning paths. These perturbations occur both along the demand and supply functions and along the trajectory of History that charts the evolutionary learning equilibriums.<sup>8</sup>

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<sup>8</sup> Learning cross-elasticity of demand along the learning demand function,  $D(\theta) = D(\theta, \mathbf{p}(\theta), \mathbf{q}(\theta))$  is defined as  $(d/d\theta)(\partial \log q_i(\theta)/\partial \log p_i(\theta)/\partial \log q_j(\theta)/\partial \log p_j(\theta))$  for  $(q_i, q_j)$  as elements of the vector  $\mathbf{q}(\theta)$ , and  $(p_i, p_j)$  as elements of the vector  $\mathbf{p}(\theta)$ . Likewise, the learning supply elasticity can be defined. The above expression can be rewritten as  $(d/d\theta) \times [(p_i/p_j) \times (q_j/q_i) \times \{(dq_i/dp_i)/(dq_j/dp_j)\}] > 0$ . The expression under [.] is positive because of complementarities between  $i$ th and  $j$ th goods in a dynamic basic-needs regime of development and multimarkets.

The expression under [.] is sustained along the trajectory of dynamic basic-needs regimes of development by appropriate technological change and learning along IIE-learning processes. Thus the expression for learning cross-elasticity (demand and supply) over all is positive. One notes as well that a static partial equilibrium analysis is replaced by the general system of multimarkets. This is due to the minimal number of three variables required for the learning function, including the  $\theta$ -variable. The whole implication is thus quite contrary to the static concept of elasticity in mainstream demand and supply theory.





Contrarily, in the case of a knowledge-induced objective criterion for the learning consumer behavior influenced by conscious oneness, the change in total utility due to knowledge-induction is always positive, as interest rate declines consequent to closer linkage between money and the mobilization of savings into investment. The result is growing complementarities between the financial sector and the real economy as interest rate declines and bank savings are mobilized into spending in the good and productive things of life. Such a linkage is of the nature of unification of systemic knowledge comprising spending and the real economy through the conscious use of financing the good possibilities. The objective well-being criterion of the Islamic economy is thus simulated continuously with the regeneration of such systemic knowledge-flows reflecting unity of knowledge in such a system.<sup>10</sup>

The conclusions from the above discussions are that socioeconomic predictability is determined under the simulation effect of learning in the Islamic financial markets. On the other hand, such a precision is lost in the utilitarian analysis due to intertemporal volatility caused by the pervasiveness of rate of interest in it. The words of Keynes on the money-craving people in our future generation are at point here. Keynes (1963, reprint, p. 369) wrote:

The love of money as a possession – as distinguished from the love of money as a means to the enjoyments and realities of life – will be recognized for what it is, a somewhat disgusting morbidity, one of those semi-criminal, semi-pathological propensities which one hands over with a shudder to the specialists in mental disease.

### ***3.11. The concept of value in Islamic economics and finance vis-à-vis mainstream orthodoxy***

#### ***3.11.1. Value concept in mainstream economics and finance***

In mainstream economics the concept of value is linked with marginal utility of a good in consumption, and thereby in general with the marginal substitution concept. This assertion is made on grounds that the opportunity cost of alternatives in neoclassical economics is considered to be the real cost in rational choice; all the other cost factors being book-entries. But such a real cost concept does away with all such elements as ethics, values, and systemic interaction that remain embedded in the economic domain. The partial differential method of calculus that is used does not allow for studying the embedded effects. Besides, the total

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<sup>10</sup> Let  $W = W(X(\theta), i, \theta)$  be the objective function of the Islamic financial economy.  $\theta$ -values denote learning.  $X$  denotes the real economy variable. Hence  $dW/d\theta = (\frac{\partial W}{\partial X}) \times (\frac{dX}{d\theta}) + (\frac{\partial W}{\partial i}) \times (\frac{di}{d\theta}) + \frac{\partial W}{\partial \theta}$  (Signs determinate positive)

$\begin{matrix} >0 & & >0 & & <0 & & <0 & & >0 \end{matrix}$

differential of the objective criterion, such as constrained utility maximization and profit-maximization as examples, invoke the partial differential, and thus treat the economic variables independently of the embedded effects, such as of ethical values.

On the other hand, intertemporal marginal utility ratio is a direct function of the rate of return or of its shadow intertemporal pricing that appears as discount rate or time-value of money.<sup>11</sup> Likewise, in the case of pricing theory of the firm, expected utility function suggests a risk-return analysis that requires trade-off between risk and return. Investors desire higher return and less risk. But if risk is to increase then expected return ought to increase as well.

This idea can be generalized in the intertemporal case of investment decision-making by considering time-derivative of the risk-return equation. But the direction of change of the marginal utility over time is undetermined. That is because over time, with changes in preferences and expectations, investors can alter their perceptions regarding risk and return while keeping the risk-return trade-off the same. Consequently, intertemporal pricing of risk and return loses its predictive power. The concept of value based on intertemporal marginal utility criterion is lost.

Furthermore, since investors in mainstream economics look at interest rate as a compensation for risk and return, therefore, the payoff-vector includes interest rate in it. Consequently, the loss of predictability in the movement of expected marginal utility over time is made more uncertain by the presence of interest rate variable.<sup>12</sup> This intensifies the argument against the use of marginal utility criterion as a measure of value, and hence, of neoclassical pricing that depends on discounting by the rate of interest. Consequently, there is no substantive theory of value in mainstream economics. We will reinvestigate this issue while discussing the macroeconomic ramifications of the concept of value, pricing, and output.

### ***3.11.2. The concept of value in Islamic economics and finance***

Morality, ethics, and values are the central creations of the episteme of conscious oneness. Their manifestation and practice in the world-system are evident and real issues. These are generated by the functional ontological application of the epistemic unity of knowledge in the learning

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<sup>11</sup>  $dU_1/dU_2 = 1/(1+i)$ , where  $U_1$  denotes the first time-period value of the utility function;  $U_2$  denotes the second time-period value of the utility function that is discounted by the interest rate, “ $i$ .”

<sup>12</sup>  $MU(x) = MU(x(i)) = dU(x,i)/dx = \partial U(x,i)/\partial x + [\partial U(x,i)/\partial i] \cdot (di/dx)$ . These terms are volatile due to variations in the rate of interest.

process. Now to show the precise understanding of the concept of value in Islamic economics and finance we need to derive it from the functional ontology of the well-being criterion function of unity of knowledge.

What is the well-being criterion function according to the functional ontology of the Islamic episteme? We note that conscious oneness is the fundamental episteme, and its carriers in terms of socioeconomic variables, financial instrumental variables, and policy-institutional variables are all induced by knowledge-flows that are discursively derived from the episteme of oneness and are numerically assignable. The normative reconstruction then follows upon the positivistic simulation of well-being in respect of the circular causation relations between the variables. Applications and policy recommendations follow upon the normative reconstruction of the issue at hand.

Within the worldview of unity of knowledge is brought together the unity of the knowledge-induced world-system, a cognized form that continuously and pervasively learns in unity of knowledge. According to this praxis, the well-being function (WF) is a functional relationship between the knowledge-induced vectors of variables. They establish unity of the world-system in respect of the problem under study, by means of pervasively complementary interrelationships between the representative variables. The normative reconstruction of the positivistic departure from unity of the world-system (problem at hand) leads to the rise of a participatory socio-scientific order. The objective criterion of Islamic economics and finance within the domain of “everything” indeed represents the worshipping of *Allah* in terms of conscious oneness (*Tawhid*). This experience is the same as to consciously understand and implement conscious oneness into experience. But since it can only be done through learning as in the IIE-learning processes, therefore, maximization of every kind is logically impossible. The axiom of optimization of mainstream economics is abandoned and replaced by simulation of knowledge-flows and their induced variables everywhere. The well-being function is simulated over the learning variable by using the circular causation relationships between the variables. The simulation is taken from one IIE-learning process to another continuously.

Hence we define socioeconomic value by the following expression:

$$\text{Value} = (d/d\theta)(WF(\theta, \mathbf{x}(\theta))) = \sum_x \frac{\partial WF}{\partial \mathbf{x}} \times \frac{d\mathbf{x}(\theta)}{d\theta} \quad (3.5)$$

But this expression is a theoretical concept. It is difficult to measure it, since the form of WF must be specified and the data for it must be available in order to estimate it.

However, the problem of estimation of WF is overcome. It can be shown that since WF is monotonic to simulated  $\theta$ -values, therefore alternatively, such an estimated  $\theta$ -value obtained by simulation in the

circular causation relations is an equivalent measure of Value in Islamic economics and finance. The attained level of unity of knowledge is expressed in terms of the learning parameter in the estimated circular causation relations is the cardinal measure of socioeconomic *Value* in the light of unity of knowledge.

The concept of *Value* in Islamic economics and finance is not solely related with price. It is therefore contrary to the utilitarian and production concept of relative prices (or relative intertemporal utilities) as value. Contrarily, in Islamic economics and finance, the theory of resource allocation and resource mobilization, choices and decision-making, consumer preferences and producer menus, and the like, remain independent of the marginal substitution and opportunity cost concepts of mainstream economics. Prices are embedded in the value concept in terms of their circular causation relationships with other variables. The price-vector appears along with other variables in the specific estimated equation of  $\theta$ -value in the circular causation relational system.

Returning to the predictive power of the equation of value in exchange and over intertemporal resource allocation, we note now in the case of Islamic economics and finance that there is a unique directional change and it is positive:

$$\frac{dx(\theta)}{d\theta} > 0; \theta_{\text{est}} \rightarrow \mathbf{x}_{\text{new}} \rightarrow \theta_{\text{new}} = f(\mathbf{x}_{\text{new}}(\theta_{\text{new}})) \quad (3.6)$$

$\theta$ -values are determined by the IIE-learning process on the basis of the *Tawhidi* episteme. This assigns estimated values to  $\theta_{\text{est}}$  by weighting of the variables of the circular causation system. Subsequently,  $\mathbf{x}_{\text{new}}$ -variables are stipulated in the light of the estimation results to simulate the circular causation system into the next round of IIE-learning process. This exercise is done by discourse through the medium of abstraction.  $\theta_{\text{new}}$ -values are thus assigned in the light of corrections recommended for attaining better participatory socioeconomic order. The new process of simulation in the IIE-learning processes is thus reinitiated, and so on.

How then is price set in respect of the economic and financial value of exchangeables? In other words, what price can be extracted for a good in exchange? The answer can be afforded by the example of a farmer who finds a rare fruit on a tree and then discovers that it has medicinal value and the fruit can be sold at a high price. Yet in light of the episteme of oneness on which Islamic economic and financial behavior and decisions are premised, the farmer can be entitled only to the value of his effort that he has given to get the fruit and to discover that it had medicinal value, plus the transaction costs that he would have to bear in bringing the fruit to market exchange. But the farmer cannot charge for the subjective scarcity price of rarity of the fruit in the world of medicinal artifacts. This last part of value is left for determination to the exchange process in the kind of an ethicizing market system of the dynamic basic-needs regime of

development explained earlier. What is true of such a price-determination for the farmer is true of every subsequent trader of the rare fruit. The concept is generalized to all goods and services in the dynamic basic-needs regime of development that are subjected to ethical transformation. Such a transformation is the result of learning in unity of knowledge in the world-system of good things of life. It is marked by the trajectory of History shown in Figure 3.1.

Price-determination in Islamic ethicizing markets is therefore nearer to the classical market exchange, and rejects the neoclassical price-determination theory in terms of relative prices and marginal utilities of substitutes, altogether. The difference between classical and Islamic market mechanism is pointed out in Figure 3.1.

### ***3.12. Macroeconomic implications of demand, supply, and value in mainstream and Islamic financial economics***

We do notice the rumblings of ethical thinking in the history of economic thought and political economy. Keynes was moved by the classic work *Ethica* of G.E. Moore (1903) and wanted economics to become the handmaiden of ethics (O'Donnell, 1989). But the entire project failed despite Keynes' grand intentions. The fiasco was due to the aggregation problem from microeconomics to macroeconomics. The two systems remained dichotomous and saw price level and output from different viewpoints. Preferences are absent in macroeconomics, and when they are at all invoked, macroeconomics reverts to microeconomic behavior, as in public choice theory and rational expectations theory.

Public choice theory once again assumes methodological individualism as the stronghold of economic rationality (Buchanan, 1975). Likewise, welfare economics in the light of Walrasian general equilibrium analysis degenerated into production maximization subject to utility constraints across goods and services. In this case, marginalism between goods and factors became the center of optimization problem (Henderson and Quandt, 1971).

In macroeconomics, the absence of preferences fails to endogenize ethics in macroeconomic theory, while in microeconomic theory, preferences and menus are driven by methodological individualism and self-interest within the implications of economic rationality. Economics and finance thus remain differentiated from social implications, and hence from ethics and values (Holton, 1992). The great questions of social justice, fairness, and sustainability are not *endogenously* driven in the domain of mainstream economics and finance theories (Phelps, 1989).

The aggregate demand and aggregate supply implications and the income multiplier showing the catalytic effect of spending in the economy along with fiscal economic policy lead to no particular stability. The



full-employment level of output is never attained. The permanence of bank saving that is driven by interest rates, always withdraws a certain amount of potential output away from spending. This happens at every point in the life of the economy. Consequently, in the presence of savings as withdrawal, hence the permanence of interest rates on bank savings, bank savings deny the actualization of potential output (full-employment real GDP).

On the other hand, the monetarists argue that every fiscal spending remains inflationary, so that the economy inflates permanently before the full-employment output is neared. Household and business preferences in the background shift between the real and financial sectors. Tobin (1958) showed in his Liquidity Preference Theory that such alternation between preferences divides the economy into two competing sectors, the financial sector and the real sector. The full-employment level of output, and thus the theory of general macroeconomic equilibrium attained by shifts and changes in aggregate demand and aggregate supply, does not allow a move into predictable directions for economic policy in concert with the real and financial economy. Indeed, in economic history there was only one instance when the industrialized world ever reached near full-employment, and that was by the immoral act of World War II (Worswick, 1989).

According to the aggregate demand and aggregate supply establishing a stable general equilibrium, it is contradictory to pursue complementarities between fiscal policy and monetary policy. That is, it should be understood first, that if expansionary monetary policy is announced, this will excite expectations in the economy, generating ex-ante investments and planned household spending. Consequently, the IS and LM curves will shift together to the right. The result will be higher output but at high interest rates. The result will be inflationary economic growth in the business cycle. Second, if there is contractionary monetary policy, the resulting increase in statutory reserve ratio will cause commercial excess reserve ratio to decline. Thereby, lending will decline, and the effect will be felt on the side of the expenditure sector. Now the IS-curve shifts downward along with the LM curve. The result is lower interest rate with a shrinking in output. Such is the case of economic recession and depression in the business cycle. The consequence would also be underemployment equilibrium in the economic state of deflation.

To correct for such disequilibrium or unstable situations, even though the general theory qualifies the results to be inflationary or at under-employment equilibriums, it is necessary to re-engineer the economy along lines of complementarities between the quantity of money and its absorption in the real economy. This could happen through the function of financing instruments that mobilize, not save (resource withdrawal), in the macroeconomic sense, all the productive resources of the economy. In such an economic and financial re-engineering it is possible to establish money-real economy complementarities.

Furthermore, with the effect of preferences changes through the learning process, it is possible to sustain such complementarities. The result is that business-cycle fluctuations are arrested, not avoided completely, with the supply of resources (spending) becoming equal to the demand for spending *throughout* the life of the real economy. Such a situation of money and real economy complementarities is an endogenous process of synergizing the money and real economy linkages through the bridge of financial instruments. In such a process, economic policies become endogenous in nature along with the market-driven spending incentives (consumption and investment). Governments participate with the private sector to share and diversify the risk, returns, and production menus. Awareness of conscious oneness is raised by knowledge formation in the consumer to endogenize preferences.

This is the message of the Islamic socioeconomic change wherein aggregate demand and aggregate supply concepts are replaced by complex aggregations of market-driven variables under the impact of dynamic preference changes overall. This implies learning toward simulating the money and real economy linkages with the use of appropriate financial instruments serving as catalysis in sustaining the complementary and participatory change. Price level, money, output, consumption and investment, resource mobilization, employment, etc. remain microeconomic in nature in reference to the endogenous preferences and market-driven indicators of an ethicizing market exchange. But the aggregation from the microeconomic level to the macroeconomic level is of a complex nature. Such a complex aggregation can be understood in reference to expressions (3.1)–(3.4).

### ***3.13. Concept of value is dysfunctional in macroeconomics***

In mainstream macroeconomic theory price level is not the indicator of value, as it denotes inflationary conditions, and this remains permanent along the business cycle. Real output can be considered as a macroeconomic value-parameter. But the presence of nominal output and price level in it dislodges the real output from being an acceptable indicator of social welfare. To get away from this limitation of the real output, economists and sociologists have been trying to construct alternative indices of well-being. Examples are Human Development Index, Human Poverty Index, Entitlement and Empowerment Index, Quality of Life Index, and Health Index. Yet these indicators due to their aggregate nature in the macroeconomy do not explain the relational structure of learning, sustainability, well-being, and change.

In Islamic economics, finance, and social order the selected indicator is taken to be the well-being function. This was explained earlier. Its economy-wide and society-wide extension is done by complex aggregation

of the type mentioned. Hence joint well-being indices arise by compounding such indices for multisystems in concordance with the level of knowledge of unity of the world-system as available at a time and epoch within the IIE-learning process.

### **3.14. Conclusion**

This chapter has shown that there is a substantive explanation of science, and in it of economics and finance as part of the universe of “everything,” which are all premised on the episteme of *Tawhidi* conscious oneness. This episteme reflects the epistemology and ontology of unity of knowledge in the world-system. Contrarily, conventional science, economics, and finance are artifacts of rationalism and are fleeting emotions of mind and matter. That is because they have no methodology whereby to explain the conscious oneness in the socio-scientific order. From rationalism the worldview of transcendental consciousness cannot be derived. Hence rationalism does not answer the questions of uniqueness and universality. Yet this chapter has shown that universal explanation and man’s quest for it remains seriously marred and incorrect by depriving science, economics, and finance of this ultimate reality of union as if of body and soul of a synergetic unity of being.

On the other side, the theory that emerges in the Islamic context of the *Tawhidi* worldview is a revolutionary one. It is contrary to the narrow perceptions of mainstream intellection. The results too are different. The models that form the functional ontology of the *Tawhidi* episteme are theoretically holistic and extensively explanatory and positively applied.

As the world moves into newer dimensions of examining the vista of postmodern inquiry in the sciences and world-system, the *Qur’an* stands out as the immortal text since the beginning of creation to offer the ever new vision. The *Qur’an* gives the message for *all* of mankind by its reasoned logicalness and completeness. It offers a design of the universe that offers well-being to all within the context of unity of divine knowledge, its functioning, and sustainability in the world-system, and its permanence in the knowledge–time–space dimensions.

In this ultimate sense, the *Tawhidi* praxis for “everything” presents *the* worldview. To it mankind can turn for the ultimate answer to “everything” through the exercise of the rational faculties and the consequential understanding of symbiosis in creation. Such a unified creation is entrenched in continuous and pervasive learning and creative evolution until the Event of the Hereafter. The Hereafter is explained in this chapter

as the Great Event. In terms of their super-cardinality of the super-space of actions and responses relating to unity of the divine law and the world-system, *Tawhid* and the Great Event are equivalent. They together mark the End and the Beginning (*Tawhid*) of Creation.<sup>13</sup> So reflect on it *all!*<sup>14</sup>

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<sup>13</sup> *Qur'an* (1:2): “This is the Book; in it is guidance sure, without doubt, to those who fear *Allah*.”

<sup>14</sup> *Qur'an* (2:164): “Behold! In the creation of the heavens and the earth; in the alternation of the Night and the Day; in the sailing of the ships through the Ocean for the profit of mankind; in the rain which *Allah* sends down from the skies, and the life which He gives therewith to an earth that is dead; in the beasts of all kinds that He scatters through the earth; in the change of the winds, and the cloud which they trail like their slaves between the sky and the earth; – (here) indeed are Signs for a people that are wise.”



## CHAPTER 4

# *The Socio-Scientific Universe According to the Islamic Scholastics*

### *4.1. The meaning of socio-scientific world-system*

The generality of the universe is “everything.” In this regard, the *Qur’an* declares abundantly on the ultimate and perfect domain of the divine law in creation. This also means the profundity of the divine law in explaining and applying to all things in the knowledge–time–space dimensions of the conscious universe. Such observations or insights that span the complete universe comprise the Signs of *Allah* (*ayath Allah*).<sup>1</sup>

A subsystem of the complete and conscious universe is the socio-scientific world-system. The socio-scientific universe is described foundationally by the uniqueness and universality of the episteme of conscious oneness. The methodology of *Tawhid* in respect to “everything” is unique, hence universal. But the problems of different subsystems are bound to be diverse. Diversity does not mean differentiation of conception and formalism, one for this and another for that subsystem. Rather, the concept and the formalism remain invariant in the realm of the *Tawhidi* worldview for “everything.” Problems and methods of analysis can vary. But even in this case, the understanding of the diverse problems and the

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<sup>1</sup> *Qur’an* (65:12): *Allah* is He Who created seven Firmaments and of the earth a similar number. Through the midst of them (all) descends His Command: that you may know that *Allah* has power over all things, and that *Allah* comprehends all things in (His) Knowledge.

Note here that the precept of the “seven Firmaments” is equivalently explained by the innumerable dimensions of reality in both earth and the heavens and across all the ontological constructions that the investigations of such innumerable of thought invoke, as by the medium of abstraction and mathematical complexity. Abdullah Yusuf Ali explains the precept of “seven Firmaments” in the following words (extracted): “The mystical meaning refers to the various grades in the spiritual or heavenly kingdom, the number seven being itself a mystical symbol, comprising many and yet forming an indivisible integer, the highest indivisible integer of one digit” (footnote 5526 of *Qur’an* (65:12)).

specification of the methods of analysis remain bound to the foundational logic of the *Tawhidi* methodology. The latter overarches the domain of unity in diversity.

Consequently, we explained earlier that in the *Tawhidi* learning world-system, such a foundational methodology replaces optimization in the small and the large by simulation. Thereby, the method of differential calculus is used not in defense of optimization, rather as this method is required to support the methodology of change by learning in unity of knowledge.

On the same issue, we explained that the meaning of ontology as a metaphysical concept of the human ego as *Dasein* in Heidegger (Hofstadter, 1988) cannot be used to explain the Being of *Allah*, who is neither numerable nor explainable as a corporeal and measured being.<sup>2,3</sup> Consequently, we equated the treatment of *Tawhid* with the precept of the conscious one in terms of the unity of knowledge and the divine law that describe the unity of creation. The meaning of ontology as a metaphysical concept is thus replaced in this study by that of *functional ontology*. Gruber (1993) refers to this concept of ontology as engineering ontology.

#### 4.2. Defining the idea of socio-scientific

Finally, the term socio-scientific is used as the embedded domain of all subsystems of science and society in the light of their integrated study by means of the episteme of conscious oneness and in the light of their substantive analytical methods and unique and universal methodology. The idea of science is thus changed from its mundane one of logical formalism combined with analytical inquiry, and possibly also experimentation of physical phenomena. In socio-scientific terminology, science comprises logical formalism of the unified world-system. According to this formalism, the concept of science becomes a learning process in the analytical facets of unity of knowledge and the world-system. The methodology of conscious oneness is studied, analyzed, and applied by derived rules and sets of cogent instruments.

The worldview of unity of knowledge in the socio-scientific world-system was explained in the earlier chapters by its inseparable attributes: These are

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<sup>2</sup> Imam Ghazali (Marmura, 1997, p. 107) studies the *Qur'anic* stance on revelation versus rationalism: ... Once your impotence becomes manifest, then [one must point out that] there are among people those who hold that the realities of divine matters are not attained through rational reflection – indeed, that it is not within human power to know them. For this reason, the giver of the law has said: “Think on God’s creation and do not think on God’s essence.”

<sup>3</sup> See also Acikgenc (1993) on the theme of indefinability of Being.

first the episteme of conscious oneness (*Tawhid* explained by the relational measure of “super-cardinality”) establishes the domain of reference in terms of concepts and instrumentation of such concepts, such as by the rules of the *maqasid as-Shari’ah*, meaning the purpose of the Islamic law. Second, worldly knowledge is derived from the divine guidance of oneness by discourse on the nature of the conscious universe in respect of the general and specific attributes of the problem at hand. The discursive process and institution that act in such worldly knowledge derivation through the epistemic origin is the *Qur’anic* consultative medium called the *shura*, which discourses the nature of reality, *tasbih* (hence we term this relationship as *tasbih–shura* dynamics) (see *tasbih–shura*: discursively moral consciousness).

*Tasbih–shura* dynamics form a discursive experience that continues on pervasively and continuously in the third attribute: This third attribute is the construction of the unified world-system in respect of the issues and problems under investigation. The formal approach is done by the use of functional ontology of the system that is derived from the discursive medium of the worldly derivation of knowledge. This, in turn, is the origin of the episteme of conscious oneness. We have referred to this quantitative approach in reference to simulation of the well-being function, subject to circular causation relations.

Such a complete formal model takes the form of process learning as knowledge-flows and the knowledge-induced connected world-system pervasively learn in knowledge–time–space dimensions. The resulting knowledge dialectics that emerge are described by the Interactive, Integrative, and Evolutionary (IIE) nature of the learning world-system. This feature of the learning process remains permanently ingrained in studying every issue and problem under investigation. Because of such uniqueness of the analytical methods used for carrying forward the methodology of oneness, the diverse issues and problems in all disciplines remain interactively embedded within the realm of the world-system. Such a systemic manifestation of learning in unity of knowledge is a representation of the organic application of *Tawhid* as conscious oneness relating to the world-system.

We have pointed out earlier that contemporary exegeses of the *Qur’an* (*tafsir*) failed to highlight *Tawhid* and its role as functional ontology in the construction of the Islamic world-system as the central message of the *Qur’an* to mankind. The result then is this: The *Qur’anic* interpretation (*tafsir*) remains simply a repetition of the traditional way of understanding the *Qur’an* even at a time when great feats are being made in the faculty of thought along with the search for new epistemologies in every field of knowledge. This critical remark does not mean abandoning the traditional understanding of the *Qur’an*. Rather, it is to retain all of it, but to seek fresh insight of this universal book that overarches knowledge–time–space dimensions (Al-Sha’rawi, 1987).



Regretfully, an example of a pedagogical case is the translation of the *Qur'an* by **Abul Ala Maududi** edited into English by Z.I. Ansari (2006). The translator's *Introduction* section contains no highlight of *Tawhid* as the central focus of the *Qur'an* and its functional ontological meaning. Instead, the editor/translator writes (Ansari, 2007, p. xxvi, edited): "In so far as it (the *Qur'an*) seeks to explain the ultimate causes of man's success or failure the subject of the Book is Man." The primacy of *Tawhid* related to man and the world-system is not invoked.

Exception though is the translation by Taqi-ud-din Al-Hilali and Muhsin Khan (undated), which has taken the focus on *Tawhid* to explain the *Qur'anic* verses in their *tafsir*. The theme of *Tawhid* as the conscious oneness is truly the integral study of man, universe, and "everything" in the light of unity of knowledge as the ultimate *raison d'être* of creation. From the primal origin of *Tawhid* emanate all knowledge-flows that establish the position of man and conscious intellection in the theatre of life and human comprehension of such an integral relationship. The very first verses of *Qur'anic* revelation point out this fact as the only purpose of creation, and thereby affirm belief on the oneness of *Allah* in the context of the reflective self and the world-system.<sup>4</sup>

For these reasons, this book has pointed out earlier that neither the metaphysical ontological treatment of *Tawhid* nor its superficial understanding is sufficient in acquiring piercing depth of understanding the theme of *Tawhid* and life. To understand this synergy comprises the *Tawhidi* explanation and construction of the world-system of unity of knowledge. Such is the nature of the *Qur'anic* worlds (*a'lameen*), and in this context, of the meaning of creation (*khalq*)<sup>5</sup> in terms of the Signs of *Allah* (*ayath Allah*).<sup>6</sup> These are all premised on the divine unity of knowledge (*ilm al-marifa*). The burst of knowledge arising from the *Tawhidi* origin creates evolutionary learning processes of incessant "pairing" experiences between mind, matter, and the worshipping worlds (*tasbih*).<sup>7,8</sup>

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<sup>4</sup> *Qur'an* (96:1–5): "Proclaim! In the name of your Lord and Cherisher, Who created – Created man, out of a (mere) clot of congealed blood: Proclaim! And your Lord is Most Bountiful, – He Who taught (the use of) the Pen, – Taught man that which he knew not."

<sup>5</sup> *Qur'an* (30:8): "... *Allah* has created not the heavens and the earth, and all that is between them, except with truth and for an appointed term. And indeed many of mankind deny the Meeting with their Lord."

<sup>6</sup> The word appears 300 times throughout the *Qur'an*.

<sup>7</sup> This completes the interconnection between *haqq ul-yaqin* (knowledge of *Allah*), *ilm al-yaqin* (worldly knowledge) derived from the divine episteme, and *ayn al-yaqin* (functional ontology and evidences for normative and positive actions and responses in the unifying world-system of "everything").

<sup>8</sup> *Qur'an* (51:48–49): "And We have spread out the (spacious) earth: How excellently We do spread out! And of everything We have created pairs: that you may receive instruction."

### 4.3. The study of world-system by the Islamic scholastic epistemologists

It is interesting to note that the holistic understanding of *Tawhid* and the unified world-system in the overarching influence of unity of knowledge was very much the methodology of the Islamic scholastic epistemologists. We will study three such epistemologists here. The *Qur'anic* scholarship of Imam Ghazali (Karim, undated), Imam Shatibi (Masud, 1995), and Imam Fakhruddin Razi (Noor, 1998; Nasr, 1963) is a distinct opposite to the worldview of the Islamic rationalists. The Islamic works on rationalism we will study here are of Al-Farabi (Walzer, 1985). The traditional epistemologists and the rationalists in Islamic scholasticism reveal deep divide in the understanding of the universe in its essence. Thus, rationalism among the Muslim scholars that commenced a long time ago persists today as a continuing parody of opposites in the fold of modern-day Muslim scholars.

#### 4.3.1. On Imam Ghazali's epistemology

Abu Hamid Muhammad ibn Muhammad ibn Muhammad al-Tusi al-Ghazali (1058–1111 AD) (Khan, 2008), later crowned with the prestigious titles of Sheikh al-Islam and Hujjat al-Islam, was the most prominent exponent of revelatory Islam. His ideas drove deep wounds in alien developments of Muslim thought following Greek lineage of rationalism. In this account, Imam Ghazali wrote his famous work called *The Refutation to the Philosophers (Tahafut al-Falsafah, Marmura, 1997)*. *Tahafut* was a deeply learned refutation of the philosophical rationalism of Al-Kindi, Ibn Sina, Ibn Rushd, and Al-Farabi. So deep was this highly intellectual refutation that rationalism never could raise its head in the political and common heritage of Islamic belief after that time. Subsequently, Imam Ghazali wrote another masterpiece, *Revivification of Religious Thought (Ihya Ulum-Id-Din, Fazlul Karim, undated)*. In this treatise, Imam Ghazali covered most aspects of Islamic belief and code of life (*Deen*).

While the diverse aspects of Imam Ghazali's thought and contributions are multifarious in nature, his ideas also have deep implications on Islamic ways of reasoning the nature of Islamic worldly affairs (*muamalat*). Within *muamalat* is embedded the study of economic and social problems in the light of conscious oneness. Indeed, Ghazali wrote on conscious oneness in the following words (Fazlul Karim, undated, p. 248 edited):

In short the truth that is established after *Kashf* (inner introspection, or consciousness) is not changed. Similarly, there is no change of *Tauhid* near the owners of *Kashf* or inner introspection. But the *Tauhid* which is established upon general faith is like the sorcery of Pharaoh's sorcerers. Their look is only to the external serpent.

The verse of the majestic *Qur'an* (30:7) on the theme of conscious oneness for reflection is this: "They know but the outer (things) in the life of this world: but of the end of things they are heedless."

Imam Ghazali understood the dynamics of knowledge advancing toward greater consciousness. Today this secular knowledge can be made akin to information-flow in cybernetic space. In his *Ihya Ulum Id-Din*, Imam Ghazali delineates divine experience in man's rise toward the comprehension of *Tawhid*. The first stage toward acclaiming *Tawhid* is like "the outer cover of a coconut." *Tawhid* in the first stage is uttered by the tongue: "There is no deity but *Allah*." The second stage is like the "inner cover." This experience is confirmation of the proclamation of *Tawhid* by the heart. The third stage is the "kernel of the coconut." This stage sharpens the conscious intellection of *Tawhid*. The fourth stage is the "oil of the kernel." This is the stage of immersing oneself totally in the consciousness of *Tawhid*. The *Qur'anic* depiction of the learning cybernetic universe forms a continuous phenomenology.<sup>9</sup> The knowledge of conscious oneness spans the knowledge–time–space dimensions, transcending beyond the limits of corporeal order into deep abstraction followed by substantive social reconstruction, implication, and application.<sup>10</sup>

#### ***4.3.2. Comparative implications of Imam Ghazali's epistemology on learning systems and cybernetics***

In recent times, cybernetics as information-generating analytical study has expanded into meta-dimensions of logical thinking (Choudhury and Hossain, 2007). The essential idea is of interconnected transmission and algorithmic generation of information between conception (functional ontology), machine, and problem simulation. The idea of interoperability (Hossain, 2007) and complementarities (Yolles, 2006) is extensively used in the domain of interconnected relationships. The result of cognitively mapping the ontological conception to problem solving through the algorithmic nature of machines has brought about neural-system revolution involving mind and machines. Such socio-scientific advances are today configuring the new scientific epistemology (Turing, 1936; Wiener, 1961).

Economics, finance, management theory and organizational behavior, and pure science, all taken up as the study of learning processes, are being

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<sup>9</sup> *Qur'an* (24:35): "*Allah* is the Light of the heavens and the earth ... Light upon Light! *Allah* does guide whom He will to His Light: *Allah* does set forth Parables for men: and *Allah* does know all things."

<sup>10</sup> *Qur'an* (59:21): "Had We sent down the *Qur'an* on a mountain, verily, thou would have seen it humble and cleave asunder for the fear of *Allah*. Such are the similitude which We propound to men, that they may reflect."

revolutionized by the system view of structural interrelationships simulated by algorithms. The analytical works of [Simon \(1960\)](#) in economics and organizational behavior ([Johannessen, 2006](#)), of Granger (done by [Nelson, 1996](#) for capital markets) in financial cointegration methods, of [Sztompka \(1991\)](#) in social theory, of [Choudhury \(1999b\)](#) in religious socio-scientific studies, of [Prigogine \(1980\)](#) in biological sciences, and of [Hull \(1988\)](#) in the study of science as process are noteworthy. The underlying implication of such cybernetic-oriented studies is based on continuous simulation of objective criteria over space and time dimensions.

Cybernetics has become a vastly interactive study between diverse fields ([Xuemou and Dinge, 2005](#)). Some of these areas are religion, philosophy, mathematics, technology, systems, humanities, and poetics. These comprise the study of relational complexity between matter and consciousness ([Sarnovsky, 2006](#)). Thus, we note that there is a distinct place for conception, formalism, and application of the continuously learning knowledge–time–space dimensional studies of every socio-scientific problem in the light of the *Qur'an*. Indeed, Imam Ghazali's epistemology of the unified and ethically learning world-system can be seen as an early invoking of cybernetic thinking in the complex but conscious universe.

Contrarily, the axiom of methodological individualism arising from social Darwinism is deeply entrenched in all such modern cybernetic paradigms. That is the indelible nature of neoliberal thinking in every aspect of its socio-scientific reasoning. Despite great advances in technical methods, the epistemology of neoliberalism remains entrenched. Consequently, sheer technical methods have failed to link the foundational methodology of unity of knowledge by way of pervasive and continuous complementarities between mind and machine mapping.

Imam Ghazali's epistemology of learning knowledge–time–space relationships deconstruct the neoliberal world as being piecewise discontinuous quanta of learning that remain disjoint and fragmented. This kind of learning is represented in social Darwinism and methodological individualism. Methodologically, pervasive complementarities and sustainability of learning in such universes remain dysfunctional. [Birrner \(1999, p. 811\)](#) discusses the problem associated with the use of “naïve control paradigms rooted in an undue belief in predictability and controllability, and with a lurking tendency toward an instrumental view of nature and human beings.”

[Yolles \(2006\)](#) also points out that the idea of complementarity in cybernetics means the claim for differentiated plurality of methodologies connected with paradigms. Thus, the *weltanschung* is denied to any universal paradigm. In such a case, the universality, as of unity of knowledge, is denied to cybernetic and system theory. This though is not the consequence of the pervasive and continuous learning domain of cybernetic insight provided by the *Qur'an* and how this was emulated by Imam Ghazali. Contrary to the differentiated notion of complementarity

in classical cybernetic theory, an important example of unity of knowledge in economics and finance is the neural system of endogenous ethics, development, and the simulation algorithmic ontology (Choudhury et al., 2007b).

#### **4.3.3. Implications of Imam Ghazali's thought on sustainability and basic-needs regime of socioeconomic development**

One notes here Imam Ghazali's central focus on morality and ethics as precursors of a sustainable development universe in which control of desire and its coterminous basket of life-sustaining needs, replace ostentatious demands and production menus. Social waste is thus avoided by solving the problem of inequitable distribution of resources in consuming and producing goods and services that revolve only around the fortunate few.

The menus of the knowledge-induced universe are driven along consciously determined dynamic basic-needs regimes of development. The demand and supply functions in such regimes remain fairly elastic together. They set stable and affordable prices and evolutionary equilibriums estimated by learning behavior in the sense of the interactive, integrative, and evolutionary properties of learning systems. Figure 3.1 shows the emergence of this kind of evolutionary basic-needs regime of socioeconomic development. The well-being derived by conscious spending in ethical goods and by unraveling the endogenous learning process is a permanent *Qur'anic* message.<sup>11</sup>

On the theme of dynamic basic-needs regime of socioeconomic development, Imam Ghazali characterized the meaning of self-sufficiency as the state of living in necessities. The shortfall from the acquisition of wants is not characterized as a state of poverty. A man who lives in just the satisfaction of needs is poor. A man who lives for acquiring more than needs as wants is not considered as poor. These moral attributes of the conscious consumer and producer taken in all their different forms, as groups, communities, institutions, and individuals underlie the dynamic basic-needs regime of socioeconomic development.

In reference to the dynamic basic-needs regime of socioeconomic development the stable prices of exchangeables in the midst of avoidance of waste are done by the use of gold and silver. Imam Ghazali pointed out that gold and silver have no value of their own. They are used to measure and adjust the value of exchange that is reflected in price. Likewise, excess

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<sup>11</sup> *Qur'an* (2: 265): "And the likeness of those who spend their substance, seeking to please *Allah* and to strengthen their souls, is as a garden, high and fertile: heavy rain falls on it but makes it yield a double increase of harvest, and if it receives not heavy rain, light moisture suffices it. *Allah* sees well whatever you do."

supply of gold and silver is unwarranted if waste is avoided and proportionate demand and supply of basic needs are maintained.

#### **4.3.4. Money and basic-needs regime of socioeconomic development in Ghazali's thought**

Imam Ghazali considered money to have its use in exchange. This point remains debatable, for intertemporal existence of markets for specific goods and services cannot be ascertained, even by means of statistical probability of occurrence of such goods and services as events distributed over future points of time. Consequently, the valuation of money in use for exchange of such futures is untenable. Money could therefore be simply a unit of exchange and settlement of payments. It cannot reflect the value of exchange taken intertemporally. Imam Ghazali's approval of money as medium of exchange is acceptable only at an existing point of market exchange.

Likewise, Imam Ghazali's socioeconomic development regime encourages the use of gold and silver rather than their hoarding. Spending in the moral and ethical needs of society is encouraged. Hoarding is withdrawal from such spending in the good things of life and is to be shunned. This is the earliest case of thinking on the income multiplier and its macroeconomic equilibrium-generating consequences that much later on became central to Keynes' economic writings. Ghazali saw savings as hoarding. This idea proves to be true in modern economic theory (Ventelou, 2005).

The marginal propensity to save is a leakage for the economy. The marginal propensity to spend is an injection. Bank saving is caused by financial interest, which also affects the disposable income in terms of the marginal propensity to save in interest-bearing outlets. Thus, income is generated from financial sources as opposed to real economic activities. The financial economy and real economy remain delinked as long as hoarding of gold and silver is practiced in the face of speculation. In Keynesian macroeconomics, gold and silver are akin to speculative financial papers that enter the speculative demand (or holding of) for money.

With such extensive economic interactions in a generalized system model, as in the case of the extended form of the General Flows of Goods and Services, we obtain Imam Ghazali's early version of socio-cybernetics. To Ghazali, the central resource mobilizing factor of such socio-cybernetic complexity is moral consciousness. Now the phenomenological model of unity of knowledge can be exemplified and configured for money and real economy (Hossain, 2005).

The formal model, pointed out in the earlier chapters, establishes the generalized system-kind of the interlinked consciousness–mind–matter–social connectedness and its application to mundane problems. It gives rise to the cybernetic economy–society embedding through the medium of the moral law. In our formalism of unity of knowledge, and in the light of

Imam Ghazali's moral cybernetic insight, the mentioned interconnectedness forms the pansystemic cybernetic topology with the primal and permanent influence of the supercardinal topology of conscious oneness. Such complex embedding in the pervasive and continuous knowledge–time–space dimensions can be compared with Talcot Parson's sociological specification of such a system.<sup>12</sup>

#### 4.4. Socio-cybernetics of a generalized system model of socioeconomic development

For a generalized formalism of such a model in the case of Islamic political economy with ethical endogeneity, Choudhury and Harahap (2008) have proposed a dynamic input–output coefficients model with *zakat*–Islamic bank–economy circular causation relationships.

Here is a conceptual formalization of the stated input–output model. The input–output model interrelating the sectoral flows between them takes the form in Table 4.1 with the following definitions of the variables:  $X_{kl}$  denotes the inter-sectoral flow of resources to generate intermediate output in the receiving sector  $l$  from the contributing sector  $k$ ;  $k, l = ZS, CS, IS, GS$ . These variables denote circular causation between Z, C, I, G sectors as shown in Table 4.1. VA denotes value added for the sectors.

$z$  denotes the value added of the direct *zakat* using sector. That is  $z$  denotes the residual amount of *zakat* after the use of total Z inter-sectorally in productive projects for the appropriate recipients of *zakat* (*Qur'an*, 2:177). There are *Shari'ah* rulings that approve in certain cases the surplus *zakat* fund to be transferred for later use.

<sup>12</sup> Talcott Parson's (1964) social embedding model called AGIL is discussed by R.J. Holton (1992) in the following way: A denotes adaptation, G denotes goal attainment, I denotes integration, L denotes pattern-maintenance. Then there is further disaggregating of AGIL into micro-AGILs to show how the AGIL pattern is systemically extended to society (a), economics (g), institutions (i), markets (l), etc. The following schema shows this kind of socioeconomic spaces. Their embedding is done by interrelating them, as by circular causation.

A	G		A <sup>a</sup>	A <sup>g</sup>	G <sup>a</sup>	G <sup>g</sup>	→	circular causation by interrelationships between (A,G,I,L)
		→						
I	L		A <sup>i</sup>	A <sup>l</sup>	G <sup>i</sup>	G <sup>l</sup>	→	(Aa,Ag,Ai,Al, ... , La,Lg,Li,Ll) etc.
			I <sup>a</sup>	I <sup>g</sup>	L <sup>a</sup>	L <sup>g</sup>		
			I <sup>i</sup>	I <sup>l</sup>	L <sup>i</sup>	L <sup>l</sup>		

**Table 4.1. Input–output table of zakat–Islamic bank–economy interrelations**

Total output	ZS	CS	IS	GS	VA
Z	$Z_{Z,Z}$	$Z_{Z,C}$	$Z_{Z,I}$	$Z_{Z,G}$	$z$
C	$C_{C,Z}$	$C_{C,C}$	$C_{C,I}$	$C_{C,G}$	$c$
I	$I_{I,Z}$	$I_{I,C}$	$I_{I,I}$	$I_{I,G}$	$i$
G	$G_{G,Z}$	$G_{G,C}$	$G_{G,I}$	$G_{G,G}$	$g$
Z+C+I+G = accounting total output					$z+c+i+g =$ national income in the <i>Zakat</i> - related sectors

$c$  denotes the residual consumption spending after the inter-sectoral usage of C. Such residuals are known to build up stocks for future use. The idea of insurance (*takaful*) in foodstuff is an example.

$i$  is the residual investment spending after its inter-sectoral use in the investment goods sector. An example is of delayed developments of *zakat*-related projects.

$g$  denotes the residual government spending. An example is postponement of G to future years in the form of foodstuff and insurance.

The input–output coefficients of the dynamic input–output analysis are shown below. An example is of  $A_{ZC} = Z_{ZC}/C$ , denoting the proportion of Z used in the development of projects for the poor in the consumption goods sector in ratio to the total spending in the consumption goods sector pertaining to the projects.

Since all  $X_{kl}$  and  $X_l$  as the  $X(\theta)$  vector variables are induced by the knowledge-flow variable  $\{\theta\}$ , all respective coefficients  $A_{kl}$  are learning coefficients. In regard to the extensively ameliorative effect of charity (Z), the *Qur'an* (2:261) declares: “The parable of those who spend their substance in the way of *Allah* is that of a grain of corn: it grows seven ears, and each ear has a hundred grains. *Allah* gives a manifold increase to who He pleases: and *Allah* cares for all and He knows all things.”

Now, in terms of the I–O coefficients we write

$$A_{kl} = X_{kl}/X_l;$$

$k, l = ZS, CS, IS, GS$ .  $X$ 's are the various sectors as explained.

Yet the enactment of the learning process by means of  $\{\theta\}$ -values simulated in the progressive IIE-processes is not automatic. It is partly intrinsic and partly guided. Learning as the intrinsic experience of unifying participation and complementarities is embedded in all things according to the *Qur'an*. Note the “paired universes” that the *Qur'an* mentions about (*Qur'an*, 13:3). Thus, all things learn by relations, just as the human world learns in unity of knowledge in the good things of life. But there is also the central role of moral guidance in such a learning system. The policy and



development-financing variables denoted by  $P$  are careers of the moral transformation through the IIE-processes.

Islamic banks thus perform a central role in resource mobilization in ways that the social and economic objectives of social well-being are simultaneously realized by activating the development-financing instruments that are *Shari'ah* approved. We also note that in the above kind of formalization regarding the economy-wide resource mobilization with inter-sectoral linkages with *zakat*, the very nature of project-specific spending of the *zakat* fund linking up with similar spending in the other sectors, reveals the microeconomic nature of the *zakat*-accounting in the *zakat*-Islamic Bank-economy interrelationship. We thereby note that the ethical focus of the Islamic economy changes the macroeconomic aggregation basis of the variables into microeconomic deconstruction and complex aggregation.

While the dynamic input-output coefficients model explains a methodology of generalized system model of the type studied in cybernetics, the model simulation is carried out by a simulation approach to random coefficients regression model. The estimates of the coefficients are next randomized and selected by means of Spatial Domain Analysis (SDA) of Geographical Information System (GIS) (Choudhury and Hossain, 2006).

#### 4.5. Imam Shatibi's Qur'anic epistemology

The early life of Abu Ishaq Ibrahim bin Musa bin Muhammad al-Lakhmi al-Shatibi is not well authenticated (Masud, 1995). Some say he was born to a Lakhmi Arab tribe and was later the preacher (*mufiti*) of a mosque in Granada. Hence, by this caption he came to be respected as Imam Shatibi. Most importantly, Shatibi's time marked the growing tension between the controversial traditionalists and innovators of the Islamic way of belief and conduct of life and its forced interpretation into legal tenets despite their distancing from the bounds of reason and conformity with the *Shari'ah*. In this regard, Imam Shatibi was a single person during his time to oppose the leading Islamic religious leaders of the time who frequently indulged in giving rulings called *fatwa*, without having sufficient knowledge and reason to back up such rulings. The Islamic law (*Shari'ah*) became a bundle of cluttered laws without an inner insight to know the philosophical vastness and practical depth of the *maqasid as-Shari'ah* (purpose of the Islamic law). Imam Shatibi revolted against such self-directed and egoistic pursuits of the Islamic religious scholars of his time.

When Imam Shatibi wrote his famous *Muwafaqat Fi-al-Usul-as-Shari'ah*, he was judged by the traditionalists for innovations. He was thus tried and banished out of Granada. Imam Shatibi encouraged opinion and free speech regarding the interpretations of the *Shari'ah* in order to promote learned discourse. He was confident that the faulty arguments

within and against the *Shari'ah* would not be tenable. In his argumentation he relied much on his own towering knowledge of the science of traditions and the legal aspects of the *Shari'ah*.

Yet for many accusations against him, Imam Shatibi was no innovator. He wrote (Masud, 1995, p. 72):

From here I felt strong enough to walk on the path as long as God made it easier for me. I started with the principles of religion (*usul al-din*) in theory and in practice and the substantive laws based on these principles. (It was) during this period (that) it became clear to me what were the *bid'a* (innovation) and what was lawful and what was not. Comparing and collating this with the principles of religion and law (*fiqh*), and I urged myself to be in the company of the group whom the Prophet had called *al-sawad al-a'zam* (the majority).

#### 4.5.1. Present-days' reflection on Imam Shatibi's times

What was true during Imam Shatibi's times is equally true today in regard to the state of the *Shari'ah* and *fiqh*. Apart from the interpretation of these important elements of the Islamic law and its juristic interpretation by right-thinking scholars, the *Shari'ah* and *fiqh* have descended into capitalization by opportunistic groups in the Muslim world. Besides the absence of tolerant discourse on possible new interpretations of worldly elements in the *light of the maqasid as-Shari'ah* and true spirit of *fiqh* by scholars, there has come about impediment to Islamic change, while much discord and fragmentation continue on among Muslims (Asad, 1987).

For instance, the field of worldly affairs (*muamalat*) according to Islam has failed to date to establish consensus on acceptable *Shari'ah* instruments for the economy and finance. While profit-sharing (*mudarabah*) is widely accepted by the school of Imam Abu-Hanifa (the *Hanifites*), it is debated in the school of Imam Shafei (*Shafeites*). Perhaps for this reason and for reasons of inability to promote the Islamic primal financing instruments of profit-sharing (*mudarabah*), equity-participation (*musharakah*), and mark-up financing (*murabaha*) under strictly revised constraints, Malaysian Islamic financing has moved out of these primary instruments and gone into secondary financing instruments, which the Islamic legalists (*fuqaha*) claim are acceptable in the *Shari'ah* (Choudhury, 2009b). But the matter remains debatable.

Above all, there is a complete absence of understanding on what actually is the nature of Islamic economics, finance, and banking arising from the epistemological foundations. This is an issue that remains not only distanced from the *Qur'an* and the *Sunnah* without tolerant discourse but is also absent in the minds of the present-days Muslim scholars and practitioners. Instead, Islamic economics and finance have deepened into foreign ideas (*bid'a*) imported from mainstream economic and finance axioms (Choudhury, 2008b).

Pursuit in the direction of understanding the epistemological depths of the *maqasid as-Shari'ah* and its consequential extensions is unknown among Muslim scholars today, just as it was during the time of Imam Shatibi. The knowledge of the *Shari'ah* in the absence of its widest possible extensions to scientific and worldly affairs is like the poverty of closure of intellection and knowledge during the times of the Spanish Inquisition. On such a state of contemporary Islamic knowledge, Gulen (2006, pp. 148–49) writes:

We use 'the horizon of hope' to mean traveling beyond the visible dimension of existence, and considering existence as an interrelated whole in the absence of which things and events cannot be perceived as they really are. Nor can its essence and relation with the Creator as well as the relation between them and humanity be grasped. Scientific disciplines that conduct their own discourse largely in isolation from one another and the prevailing materialistic nature of science that has compartmentalized existence and life cannot discover the reality of things, existence, or life.

#### 4.6. *Shari'ah, fiqh, and science*

The *Qur'an* and the *Sunnah* and the thoughts of the great Islamic learned scholars (*mujtahids*), among who is Imam Shatibi, comprise the understanding of the holistic socio-scientific domain. For this reason, we termed the technical definition of the socio-scientific, and carried its study into the embedded system of all sciences and worldly affairs in the light of *Tawhid* and the Hereafter. That is from the Beginning to the End, and equivalently from the End to the Beginning. A knowledge–time–space dimensional closure of the very large universe was thus possible. “Everything” within this consistent learning universe experienced evolutionary epistemology. The result was the phenomenological model of the conscious universe processing its organic evolutionary “bits” from *Tawhid* to *Tawhid* through the learning processes of unifying world-system.

The episteme of the *Shari'ah* lies on the understanding of the divine law (*Sunnat Allah*). This is indeed the permanent premise (*usul al-deen*) of the *Qur'an* and the *Sunnah*,<sup>13</sup> while leaving out its particular applications merely to changing mundane problems and issues of worldly affairs. As pointed out in the earlier chapters, this book considers the domain of the *Shari'ah* to overarch into scientific formalism and applications as much as this is true of *muamalat*. That is the consequence of the general cybernetic and system perspective of causal interrelationships between all embedded domains. Logically, if say economics studies the theory of demand and supply in terms of exchange price and output, while resources

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<sup>13</sup> *Qur'an* (48:23): “(Such has been) the practice (approved) of *Allah* already in the past: no change will you find in the practice (approved) of *Allah*.”

that are physical and knowledge-induced in nature are multiplied, then the pure scientific aspects of resource development must be closely studied as well. In this way, the “pairing” principle of resource augmentation is extended across markets, technology, and scientific investigations.

Such a multidimensional interactive, integrative, and evolutionary world-system has been depicted by the *Qur’an* for deep reflection.<sup>14</sup> Even the extended meaning of the Lord of the worlds (*a’lameen*) conveys the presence of *Allah’s* divine law in action and across “everything.” Such holistic inter and intrasystemic IIE understanding of the learning universe is the greater cybernetic meaning of the “pairing” universe of conscious oneness. We have dwelled on this issue in earlier chapters. The meaning here establishes the fact that the episteme of the *maqasid as-Shari’ah* as divine law extends beyond the bounds of *muamalat* into pure sciences as well. Thereby, the meaning of socio-scientific order assumes its complete significance with such an overarching essence of the *maqasid as-Shari’ah* between *muamalat* and the cosmic entirety (Bakar, 1999).

#### **4.7. Imam Shatibi’s conception of *maslaha-wal-istihsan* as social well-being**

Imam Shatibi’s philosophy of Islamic law is in such a direction of its socio-scientific holism. He termed the instantaneous action of *Allah’s* Will on creation as *kawn*. *Shari’ah* had to establish the consequences of *kawn*. Thereby, the *Shari’ah* had the inner substance to extend its domain over both *muamalat* and natural phenomena. But at the end, Imam Shatibi remained confined merely to legal matters of *muamalat* in respect of the development of the *Shari’ah*. In this latter area, Imam Shatibi’s greatest contribution to scholarship was a substantive development of the concept of *al-maslaha-wal-Istihsan*, meaning juristic preferences for the public purpose.

The concept of *maslaha* is centered on revelation, the Hereafter, and primal definition and specification of the good and service according to the *Shari’ah*. Hence, this conception transcends the utilitarian idea of the good and beautiful. These latter cases belong to the classical and neoclassical ideas of utility and welfare, which, in turn, are foundational elements of liberal political economy and political philosophy (Minogue, 1963; Quinton, 1989). They are categorically rejected in Islam. In Islam, the

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<sup>14</sup> *Qur’an* (13:1–5). Also on the extant of the *Qur’anic* law, thus of the *Shari’ah* interpreted as the *Qur’an* and the *Sunnah* by Imam Shatibi, is the *Qur’anic* verse (6:75): “So also did We show Abraham the power and the laws of the heavens and the earth, that he might (with understanding) have certitude.”

intrinsic “pairing” between the divine law and the multidimensional world-system taken in the extensive meaning of the socio-scientific order, governed by *Tawhidi* unity of knowledge, remains supreme. Such is also the context of the *Qur’anic* meaning of well-being (*falah*).<sup>15</sup> In this sense, the *Qur’anic* meaning is induced into the *maslaha* criterion, the well-being function.

Furthermore, since the *Qur’anic* precept of well-being (*falah*) inheres in the *Tawhidi* episteme, which overarches across “everything,” the broadest meaning of *maslaha* ought to be taken up at the intersystem cybernetic levels. This could be the extension of the *maslaha* concept from its limited role of knowing merely *muamalat* to the interactive, integrative, and coevolutionary understanding of the conscious universe that pervasively and continuously pairs between them all. Choudhury (2006b,c) has provided the analytics of such a complete formulation of a general system model of multidimensional systemic linkages in the *Tawhidi* superspace.

Islamic political economy is one such multidimensional interactive, integrative, and evolutionary study of unifying relationships between embedded systems influencing economics, finance, science, and society. In regard to the paired embedding of Islamic political economy, the *maslaha* well-being concept was formalized in the circular causation model searching for organic inter and intrasystemic complementarities.

#### **4.8. On the generalized model of Tawhidi unity of knowledge again**

The well-being criterion function resulting from pervasive interaction across the interactive, integrative, and evolutionary (IIE) branches of expressions (3.1) and (4.4) denotes a non-linear and complex aggregation of the separate well-being functions belonging to these branches at their nodes, as shown. One such nonlinear functional form would be the product function of complementary variables with indexed coefficients of the elasticity of well-being with respect to the variables of the well-being function. The resulting nonlinear aggregation of the well-being function conveys a cardinal measure of complementarities among the various variables and their relations appearing in the formation and measurement of the well-being function. Among the variables of this criterion function are the policy and institutional ones. These imply the necessary conditions of participation among agents in the underlying decision-making process.

The joint result of interaction among the variables and their relations leads to the compound form of the branches of the trees configured in

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<sup>15</sup> *Qur’an* (10:64): “For them are Glad Tidings in the life of the Present and in the Hereafter: No change can there be in the Words of *Allah*. This is indeed the *supreme felicity*.”

expressions (3.1) and (3.4). Such a compounding of mappings and relations is thus seen in terms of variables, their relations, the resulting well-being functions corresponding to such branches, and their representations in the resulting well-being function. In this way, the attainment of complementarities among agents, variables, and their relations signifies the meaning of integration following interaction among the entities.

Finally, from the continuously dynamic nature of knowledge-flows affecting decision-making, variables, and their relations, emanate the evolutionary processes of further knowledge-flows and the knowledge-induced entities of the world-system. The evolutionary nature of the interactive and integrative processes at each stage, as shown in expressions (3.1)–(3.4), brings out the importance of a simulation method of quantitative analysis in this interactive, integrative, and evolutionary worldview. The emerging method here suggests replacement of all steady-state equilibrium points by multiple evolutionary knowledge-induced equilibriums (Osborne and Rubinstein, 1994). Consequently, optimization as a method of holding the variables in an assumed end-state of equilibrium by controlled movements in the variables, which is made possible through trade-offs between the variables, is totally rejected by the pervasively complementary nature of the IIE system according to the *Tawhidi* episteme.

#### ***4.9. Summarizing the maslaha function in the light of its extended meaning***

The core of the *maqasid as-Shari'ah*, and hence of *maslaha*, is *Tawhid* as expressed through the divine law and its *Qur'anic* explication through the *Sunnah* and learned discourse among the Islamic learned scholars in a wide spectrum of issues in such consultation. What they discourse is about the worshipping worlds that are paired together in the learning domain. Contrarily, the *Tawhidi* methodology, as explained before, also explains the nature of rationalism as being opposite to the conscious oneness. Rationalism premises on the claim that reason can fathom all of reality by human intervention alone. Hence, the theme of God is subjected to human volition alone.

Rationalism is therefore the opposite of *Tawhidi* unity of knowledge and its relationship with the knowledge-centered learning world-system. Thus, the Islamic origin of scientific thought and science according to rationalism is oppositely poised. The *Qur'anic* direction of scientific knowledge comprehends both the spiritual and material aspects of reality. Besides, such a relationship is conceptual, formal, and applied in nature.

*Maslaha* as well-being function explaining degrees of unity of knowledge gained in the problem and its system under study is the combination of the conceptual, formal, and applied analytical representation of unified

reality. Knowledge transcends matter in the consequential knowledge–time–space dimensions. Contrarily, rationalism is a feigned understanding of space–time phenomenon only. It leaves out the greater part of experience, which is the relationship of matter and reflective self with moral and ethical values as essence. In this respect, our formalization respecting the episteme and its functional ontology and ontic evidences expressed in terms of the knowledge-driven process, signified by the *Tawhidi* learning relations, agrees with the *maslaha* and *maqasid as-Shari'ah* in the extended conscious universe of “everything.”

The evolutionary general equilibrium model of the *maslaha* as well-being that is simulated subject to its circular causation complementarities (existing or constructed by positive action) assumes the form given below. It can be applied to every socio-scientific problem under investigation.

#### 4.10. An empirical example of *maslaha* function: poverty alleviation

In the example of poverty alleviation, we make our argument using the circular causation simulation model of unity of knowledge (complementarities). This is supported by the recent policy perspective of the [World Bank \(2000\)](#) arguing that poverty alleviation is a multidimensional undertaking. Thus, for example, the *maslaha* function of poverty alleviation is taken here as functional interrelationships between human development index (HDI), human poverty index (HPI) and gender development index (GDI), all of which are induced by knowledge-ranking by ordinal values ( $\theta$ ). Since  $\theta$ -relationship with the socioeconomic variables is a monotonic function of the theoretical well-being function  $W(\cdot)$ , it can be taken as a representation of the well-being index. The following estimated equations were worked out using Statistical Package for Social Scientists (SPSS) program ([Choudhury and Hossain, 2009](#)):

$$\begin{aligned} \ln(\text{HDI}) &= -0.426 + 0.041 \ln(\text{HPI}) + 0.343 \ln(\text{GDI}) + 0.0371.\theta \\ R^2 &= 0.9967; t\text{-stats : } (1.719) \quad (1.632) \quad (2.602) \end{aligned} \quad (4.1)$$

$$\begin{aligned} \ln(\text{HPI1}) &= 6.197 + 5.529 \ln(\text{HDI}) + 3.789 \ln(\text{GDI}) - 0.624.\theta \\ R^2 &= 0.968; t\text{-stats : } (1.719) \quad (1.541) \quad (-7.538) \end{aligned} \quad (4.2)$$

$$\begin{aligned} \ln(\text{GDI}) &= -0.291 + 0.614 \ln(\text{HDI}) + 0.051 \ln(\text{HPI1}) + 0.030.\theta \\ R^2 &= 0.995; t\text{-stats : } (1.632) \quad (1.541) \quad (1.322) \end{aligned} \quad (4.3)$$

$$\begin{aligned} \theta &= 10.647 + 10.871 \ln(\text{HDI}) - 1.363. \ln(\text{HPI1}) + 4.931 \ln(\text{GDI}) \\ R^2 &= 0.998; t\text{-stats : } (2.601) \quad (-7.538) \quad (1.322) \end{aligned} \quad (4.4)$$

In the specific case of interrelationships between HPI1 and the indexes HDI and GDI, the expected signs are not obtained. In other words, the



development experience of the selected cross-section of countries<sup>16</sup> shows that even with HDI and GDI increasing, HPII also is increasing and sometimes with high values of the corresponding elasticity coefficients. This signifies worsening poverty condition. Nonetheless, we find that the elasticity coefficient of human well-being index  $\theta$  to HPII value has the correct sign (negative). This is a confusing result. We surmise that it may be caused by the presence of multicollinearity in the relationships between the composite indexes due to the common and significant presence of real GDP per capita variable in each of the indexes. Improvement in the coefficients of the estimated equations in the light of complementarities is therefore required in order to construct the normative scenario, and thereby, prescribe policies that *ought* to be undertaken to gain the needed correct complementarities between the variables, and to reduce HPI-levels.

#### 4.11. Imam Fakhruddin Razi's Qur'anic epistemology

Fakhr al-Din al-Razi (1149–1209 AD) was born in an enlightened Islamic family in the city of Rayy near Tehran. His sharp memory and intellect made him master the Islamic sciences early in age under the tutorship of his father Diya al-Din Umar, who was also a leading scholar of the time. Imam Fakhruddin Razi was particularly opposed to the Neoplatonic thoughts of Ibn Sina and Al-Farabi and in general against the Mutazzilah doctrines that were being preached by groups of Muslim Hellenic philosophers at the time. Imam Razi was thus impressed by Imam Ghazali's vehement arguments against Neoplatonism.

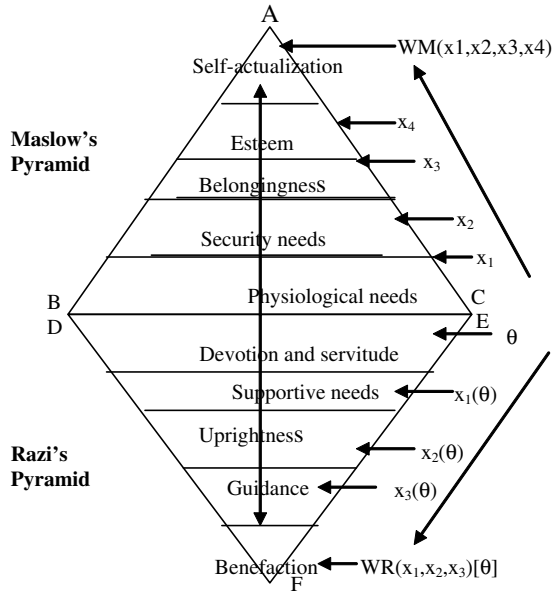
The greatest contribution of Imam Fakhruddin Razi was his theory of self-actualization centering on the worship of *Allah*. This theory of *ubudiyya* was an early precursor of latter days' Abraham Maslow's (1968) social psychology of self-actualization. But the *ubudiyya* pyramid is an inversion of Maslow's self-actualization pyramid (Choudhury, 2006c). That is because Razi's starting point of self-actualization is the moral foundation of *Tawhid* (Razi, undated, in Noor, 1998). From this basis emanates worldly consciousness, and thereby the *ubudiyya* consciousness culminates in the construction of the world-system that is ethically rooted, and whose experience centers on life-fulfilling needs. The inversion of the pyramid diagrams shows that Imam Fakhruddin Razi's premise of starting in *ubudiyya* to construct the development regime of life-sustaining goods is where Maslow wants to reach through the satisfaction of material necessities of life. Figure 4.1 brings out this point and associates the two

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<sup>16</sup> Turkey, Jordan, Lebanon, Tunisia, Iran, Algeria, Indonesia, Syria, Morocco, Pakistan, Mauritania, Bangladesh, Sudan, Yemen.



**Figure 4.1. Contrasting self-actualization pyramids according to Imam Fakhruddin Razi and Abraham Maslow.**



pyramids with two distinct consequences on basic-needs regime of socioeconomic development. In accordance with the previous definitions of the socioeconomic and policy-variables ( $x$ 's) and knowledge-flow  $\theta$  derived from the episteme of the *Qur'an* and the *Sunnah*, and the *Tawhidi* epistemic intellection through discourse, we have two different versions of the well-being function in Figure 4.1. These are explained below.

The absence of a primordial existence of  $\theta$ -value in Maslow's theory of self-actualization defines this criterion in terms of socioeconomic variables. Hence, self-actualization is solely left to human rational faculties to define the good and the bad, despite that such definition can underlie axioms of scarcity and competition, methodological individualism, and independence of relations. A learning process arising from a set of perceptions of the good society may not be premised on the unified praxis of thought. The resulting institutions, communities, and society erected on such rationalistic roots are also defined accordingly to human whims.

Maslowian social criterion function,  $WM(x_1, x_2, x_3, x_4)$ , can be akin to the social welfare function of welfare economics or a social evaluation criterion made up of a bundle of Rawlsian primaries (Rawls, 1971; Sen, 1989). In such cases, social enforcement of a regime of social goods depends on institutions, but the world forever remains in its intrinsic state of conflict between the fortunate and the deprived citizens. Consequently,

this situation raises permanent conflict between the rich and the poor in Marx (Berman, 1983). Rawls and Rousseau are liberal socialists, in whose bundles of social possibilities there is always a conflict and disharmony between opposite groups. All of such conflict-based social states lead into marginal substitutions between opposites. This marginalist and conflict postulate form the foundation of mainstream economics, finance, and society in all their various forms.

Maslow's social criterion of the above kind of social depiction has a simulation possibility through circular causation. But in the absence of  $\theta$ -value of the *Tawhidi* category, circular causation in Maslowian case simply reinforces the rationalistic regime of social development based on hierarchy and social conflicts. The idea of self-actualization is also of the Kantian type. In it the a priori moral laws, although true in pure reasoning, these laws cannot be united with the a posteriori domain of practical reason. Such is the Kantian problem of heteronomy referred to earlier.

Razi's well-being function  $WR(x_1, x_2, x_3)[\theta]$ , notationally meaning that each of the variables is influenced by the knowledge variable  $\theta$ , defines the world-system of unity of knowledge and forms, along with many of the inherent preferences, institutions, markets, and policies that enhance the learning process in  $\theta$ -values. Razi's socioeconomic bundle  $(x_1, x_2, x_3)$  is thus necessarily unified (paired and thus complemented). Or if imperfectly unified, then the *Tawhidi* intellection underlying the criterion gives rise to normative forms of circular causation between the selected variables in order to construct better possibilities of a unified socio-scientific order.

The above formulation of WR points out that Imam Fakhruddin Razi as a *mujtahid* (learned scholar of Islam) upheld the *maslaha* concept, as in the case of Imam Shatibi. In this *maslaha* function, Razi's ideas describe the creative evolutionary path of the Islamic economic and social order that remains deeply and meaningfully entrenched in the dynamic basic-needs regime of development. Now the Razi pyramid becomes evolutionary in nature with learning induced in every round of attainment of WR through the complementary attainment or transformation of circular causation between the  $(x_1, x_2, x_3, \theta)$ -variables over processes of learning in unity of knowledge in reference to the problems of the world-system under investigation.

Contrastingly, in Maslow's self-actualization theory, the objective of earning basic needs can be relegated to legitimated competition between and within competing and noncompeting groups. This is seen in the case of the aborigines' communities in Australia and New Zealand and the Native Indian communities in Canada and the United States that have been subjugated to the brute force of the market in the name of an empty call for the development of capitalistic small and medium enterprises with a human face. The virtue of capitalism with a human face never exists in the globalization agenda within its transnational practice and aggressive attitude (Sklair, 2002; Choudhury and Noor, 1997).

The scholars and institutions of Islamic economics and finance today are oblivious of the Razi well-being criterion. With superficial understanding of Islamic economics and finance as socially embedded systems and the welfare and justice as precepts, the contemporary protagonists have adopted the crass objective of *maximization* of the profit-function, utility function, and welfare function. Both of these concepts are demeaning to the learning worldview of *Tawhid*, and of *maslaha* in relation to the *maqasid as-Shari'ah*, namely, first the approach of welfare, and second the objective of profit-maximization.

Imam Razi's *ubudiyya* social well-being function as formulated above and in regard to Imam Shatibi's *maslaha wal-istihsan* function are both objective functions of *Ibadah*, meaning worship in "everything" (Biraima, 1998/99).<sup>17</sup> The profit-variable is simply a circular causation entry inside the *maslaha* and *ubudiyya* criterion functions. It is not an objective goal. Likewise, the basic-needs regime of development and poverty alleviation by themselves are not goals. They are simply circular causation entries in the vector of variables that interrelate to create sustainability in the *maslaha* and *ubudiyya* functions under the primal influence of conscious oneness and its projection on the world-system of "everything." Among these circular causation equations are those that estimate the basic-needs bundle of goods and services for development; the profit-function; equitable distribution of wealth, income, and resources; and the poverty alleviation equation. Each of these is expressed in terms of the other variables to attain social complementarities between the good things of life. Thus, every variable as a good thing of life is a *consequence* of simulation by circular causation of the well-being function (*maslaha*) in unity of knowledge. The well-being simulation *is* the objective criterion, the goal (Choudhury, 2006e).

Contrary to the pursuit of *maslaha* as well-being, contemporary Islamic economists and finance scholars have taken to Maslowian-type self-actualization criterion arising from the rationalistic world-system of social psychology. This is clearly reflected in a completely systemic independence of such studies from the endogenous treatment of knowledge, morality, ethics, and socioeconomic and policy-variables in the body framework of what we call as the embedded world-system of conscious oneness. An additional example of a terminological misuse is the imitative adoption of the term "social welfare," which is entirely of the neoclassical economic genre – a total moral fiasco. *Maslaha* and *ubudiyya* as "social well-being criteria" are contrary concepts to "social welfare function" as a utilitarian one. In the former, happiness and freedom belong to the realm of

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<sup>17</sup> *Qur'an* (51:56): "I have only created Jinns and men, that they may serve Me."

knowledge of oneness. In the latter, it is a material concept that falls within the framework of marginalism defying pervasive and continuous complementarities. These and similar topics will be covered in the subsequent chapters.

#### 4.12. Al-Farabi's Qur'anic epistemology

Having covered the thoughts of selected Islamic epistemologists, it is necessary now to understand how the Neoplatonic thoughts among Muslims were different. Our objective in this section is to adopt a generalization of the thought of scholastic Muslim rationalists by examining Al-Farabi's thought regarding the nature of the universe in terms of its essence. We find great divergences between the epistemologists examined earlier and the rationalists (Choudhury, 2002a, 2006a).

Abu Nasr Muhammad ibn Muhammad ibn Tarkhan ibn Uzalagh al-Farabi (870–950 AD) was a leading exponent of Neoplatonic Hellenic thought in introducing philosophy for the understanding of the *Qur'an*. The *Sunnah* was not important to this school in the understanding of the Islamic law of science and society. Al-Farabi's famous book, *The Perfect State (Mabadi' ara' ahl al-madinat al-fadilah)*, (Walzer, 1985), was a study of Neoplatonic and Aristotelian philosophy in conjunction with what he wanted to refer to as Islamic belief of the essential nature of the universe. Much of the earlier parts of this book are devoted to the study of the Essence of the Primal One. But in pursuit of the Greek scholastic ways, Al-Farabi never referred to the Essential One as *Allah*. Rather, his concept of the One was the essence of invariance in character and attributes of the primal substance.

This primal substance could be consciousness, such as the soul, or it can be something that remains unchanged and undiminished. From it emanates all those elements of the universe that remain essentially constrained by imperfections and needs, except the primal One. Thus, if applied to scientific conception, such a Hellenic idea of the essential One can be anything. It could be equated with the atomistic universe, which the school of atomism, the Asharism, believed in.

Indeed, with his homage to the rationalist dialectal school of Mutazillah, Al-Farabi considered that all sublunar bodies were constrained by their limitation to perfection. Yet he believed that the celestial bodies were in an increasing realm of growing perfection. Like the Greek philosophers, Al-Farabi modeled the lower (sublunar) universe into spheres with moving entities of relationships in them. Each sphere was separate from the other according to its own tasks. Yet, Al-Farabi considered that matter without form was innate, and there had to be relationships to transform dormant matter into their active functions through human reasoning. Human reasoning was thought to be moved by

active reason, which was the essence of the primal One. Even if God could be inducted into this kind of rationalistic philosophy, the Being of God was moved by divine reason not divine will. Dialectical relationships between entities were important, and all such relations flowed from the essential one, which alone remained unaffected by such causality. Relations were represented by essence that took the form of symbolism, transforming material artifacts into substantive forms.

On matters of society and politics, Al-Farabi thought of a discursive society inhabited by those who believed on the concept of the philosopher king. Like the Greek belief, such a society was the enlightened one and capable of establishing the good society. This was Al-Farabi's Perfect State. Such a state harbored the philosopher king, and reason in it was dominated by philosophical discourses on the study of religion. A city that failed in such attributes was an ignorant one according to Al-Farabi. The enlightened state was in balance in its economic, political, and social systems. If the argument can be extended to the essential balance that he found in the celestial world, it can be said that Al-Farabi idea of justice as balance and goodness extended from the social order to the cosmological order. These two together thereby were interrelated under the unified framework of symbolic relationships. The interrelationship converted matter into form as essence.

Al-Farabi like most of his contemporaneous scholastic rationalists did not outwardly refer to the meanings of the *Qur'an* and the *Sunnah* of the Prophet Muhammad and the directions of the pious companions of the Prophet. Instead, they examined the meaning of the *Qur'an* under the lens of philosophy borrowed and deciphered from Greek origin. Such approaches in the study of essential sources of Islamic knowledge made Al-Farabi, like his rationalist contemporaries, to be alien to the essential nature of the *Qur'an* and the *Sunnah* as the foundation of the Islamic worldview. Their understanding of oneness was of a metaphysical ontological category (Nasr, 2006). It entered speculative philosophy, and thereby contradicted the order of the *Qur'an* and the *Sunnah* that invoke Muslims to the study of *Allah's* creation, not *Allah's* essence. Metaphysical ontological speculations have proved to be counterproductive in all religions. The rise of scientific thought during the Eighteenth Century Enlightenment rejected such speculative ontological philosophy of the schoolmen. The Muslim World too found no place for the same kind of knowledge that brings no social benefit except individual gratification and metaphysical intellection.

#### ***4.13. Some contradictions in Al-Farabi's peripatetic philosophy***

Al-Farabi writes on contrariety between elements of the sublunar world and the celestial world. Such contrarieties are more noticeable in the

sublunar world, where a lapse of time makes them subsist until an intervening entity replaces the contrariety. Contrariety is more continuous in the celestial world, giving this its dynamics, balance, and equilibrium.

The problem caused here is this. If relations of essence and symbolism link up all entities, then there must be such linkages between the sublunar and celestial worlds and their verities. Now if in the midst of such relations the celestial world moves into change and form continuously, and this occurs at high speed, then the relational sublunar world must also move in the same fashion to keep up with the synergies between the cosmological systems. If not, then imbalances will occur in both worlds. This would destroy the balances of the celestial world that Al-Farabi talks about as the true essence of dynamics, balance, and equilibrium in matter and form.

Take the example of a complex economic system related by prices, outputs, resources, incomes, and wealth that form within and flow between multimarkets. In the celestial cosmos are the heavenly bodies whose motions govern themselves and the produce of the earth. These, in turn, determine the sustainability of the interrelated economic system of the sublunar world. Complexity like the “butterfly effect” informs us of minutest and distanced effects, as by weather patterns (Kellert, 1994). Consequently, the weather patterns caused by the celestial world-system continuously affect the sublunar world. This occurs despite some of these effects being determined in the measure of time as datum. But they truly exist pervasively in knowledge–time–space continuity.

The argument of contrariety leads Al-Farabi to support independence, displacement, and substitution even between the good things of life. Consequently, unity of relations that essentially defines sustainability in the scheme of all things is not possible. The latter days’ mainstream postulates of marginal rate of substitution that reverberated in the consequences of Greek thought of power and superiority in liberalism are found in Al-Farabi as well. This restriction toward generating knowledge-flows by interrelationships between the entities of all worlds and the structuring of the universe into separately closed spheres is a serious antipode to the episteme of unity of knowledge and the unity of the learning world-system.

The methodology of *Tawhid* as conscious oneness cannot be studied by the methods of Muslim scholastic rationalism. The rationalistic failure is the direct consequence of the Muslim rationalist construction of a universe and the meaning of essence in it of the First Cause. All such rationalist ideas were construed independently of the *Qur’an* and the *Sunnah*.

There is also the problem of emanation of essential relationships for the secondary matter and form arising from the First Cause, the Essential One. How are these relations defined?

In metaphysical ontological conception, this question cannot be answered. The problem is the same as that of heteronomy in Kantian metaphysics (Carnap, 1966). Contrarily, in the reasoning of the Islamic epistemologists, the answer is precisely given. The *Sunnah* of the Prophet

Muhammad together with the discursive society (*shura*) that acquires unity of knowledge by fathoming the worshipping world (*tasbih*) completes the correspondence needed to translate the *Qur'an* into its functional meaning through the enlightened medium. Al-Farabi left this part to human reasoning alone and not to the *Sunnah* followed by discourse (as in Islamic *shura* and *ijtihad*).

#### ***4.14. Other consequences of Al-Farabi and the Muslim rationalists' speculative intellect***

The absence of the *Shari'ah* in either its social context or extended context encompassing "everything" limits the scope of Al-Farabi's methodology to be generalized over the learning world-system. Intersystemic sustainability by means of resourcefulness, justice, and balance is lost. Knowledge is compartmentalized by separable categorization. It is neither derived from the functional ontology of conscious oneness nor can it form the worldview.

The precepts of fairness and justice in self and the overarching system do not complete the sustainable causality. Hence, they remain ontological good wishes not realized as sustainable essence of experience. The consequent absence of circular causation in a relational learning world-system by independence of intersystems and discontinuity caused by such relational wedges negates the presence of the *maslaha*, and thereby of the *maqasid as-Shari'ah*.

The absence of pervasively continuous causality disables the possibility of an Islamic socio-scientific order to arise. There are no specifics to define the objectives, goals, and specifics for attaining the Islamic order in rationalist thought.

Since *Tawhidi* conscious oneness is functionally disabled in Al-Farabi's and similar rationalist thought, none of the consciousness can be transmitted to human experience to establish the Islamic world-system. In the end, history has proved that the Islamic scholastic rationalist knowledge today shines for a time only with a borrowed light of Greek thought. It shows up today in the neoliberal thought of rationalist Muslim scholarship, mind, state, and institutions. Much of Islamic economics and finance, society, and science today imitate this rationalist legacy.

#### ***4.15. Conclusion***

The comprehensive general system view of a learning universe in the midst of the episteme of conscious oneness is uniquely and universally premised on *Tawhid*. By the methodology emanating from *Tawhid* and the unified world-system, it is possible to well define substantive concepts, such as the *maslaha* and *maqasid as-Shari'ah*. This helps to bring out the holistic meaning of the social, scientific, and cosmological interconnections by

synergetic relational forms enabled by the formalism of functional ontology.

This was shown to constitute a wider perspective of the *shari'ah*, rather than the *shari'ah* being simply restricted to worldly socioeconomic affairs, *muamalat*. This extension of the domain of the *shari'ah* is a logical result arising from understanding the sustainable nature of learning in a cybernetic description of all facets of human experience. The human intervention in such a wider field of knowledge overarches within and across diverse systems. Pervasiveness and continuity of events marked by learning entities in unity of knowledge in such diverse systems are shown to establish the general system of relations in circular causation simulation of the *maslaha* function. This is the well-being criterion. It is substantively defined and ontologically analyzed in the face of forms, facts, and figures.

Yet this is not how the Muslims of the Islamic scholastic period or of today's modern heritage understand the great *Tawhidi* worldview. During the scholastic period, the Muslim intellectual world was deeply divided between the *Qur'anic* epistemologists and the rationalists. We have treated in the epistemologist school the thoughts of Imam Ghazali, Imam Shatibi, and Imam Fakhruddin Razi. Substantive new areas of thought and novelty are shown to be possible by their methodology.

Contrarily, the rationalist school led by the Mutazillah, Al-Farabi, Ibn Sina, Averroes, and the like who were dialecticians approached the study of the *Qur'an* from the Greek philosophical lineage. In this attempt they ignored the place of the Prophet Muhammad, which is the *Sunnah*, in studying *Qur'anic* exegesis. The result was severance of the Islamic worldview from the episteme of conscious oneness as the substantive understanding of *Tawhid* and the world-system.

Thus, while the *Qur'anic* epistemologists described the world-system in the light of the *Qur'an* and the *Sunnah* through human discourse (*shura*), which investigated the nature of the worshiping worlds (*tasbih*), the rationalists on the other hand took to Greek philosophy. They thus missed the authentic methodology for doing acceptable Islamic thinking (*ijtihad*). Rationalism replaced authentic Islamic scholarship based on the *Qur'an* and the *Sunnah* via *Tawhid*. The scholarly divide between the two schools of thought remained deep and wide. It is historically entrenched. This divide marked the way Muslims today understand the world and its phenomenology between the epistemologists and the rationalists once again.





## CHAPTER 5

# *Morality, Ethics, and the World-System: Comparative Perspectives*

The main focus of this chapter is on the nature of ethical analysis premised on the *Tawhidi* understanding of systemic oneness as applied to the theory and application of Islamic economics and finance. A comparative study is carried out in reference to the prevalent studies of ethics and economics in mainstream ethicoeconomic conceptualization and in today's scholarship of Islamic economics and finance. As pointed out earlier, there has been complete absence of a methodological treatment of *Tawhid* as conscious oneness in Islamic economics and finance and socio-scientific study. A generalized theory of system and cybernetic in the study of the theory and application of Islamic economics and finance was never conceived.

The generalized system approach is new as a methodological analytic in mainstream economics (evolutionary economics) except for the nonconvergent evolutionary conflict and complexity perspectives conveyed by Popper's kind of social dialectics (Popper, 1988). This is also the case with Marxist economics (Resnick & Wolff, 1987), social Darwinism, ecological dynamics (Maurer, 1999) and world-system studies (Wallerstein, 1974).

But at the end, neither in mainstream economics nor in its roots found to prevail in Islamic economics and finance has there come about a substantive study of unity of knowledge like the *Tawhidi* conscious oneness and the world-system. But the possibility is a real one, and this has been pointed out in the literature in respect to ethics and economics and society (Sen, 1990a, 1990b; Edel, 1970). Yet it could not be harnessed because of the absence of an appropriate methodology that would otherwise carry the functional ontology of conscious oneness into the study of ethics seen as an endogenous learning process premised on *Tawhidi* unity of knowledge and its impact on the relationally unified world-system. This latter formalism is the principal focus of this chapter and book. The consequences of the conceptual formalism are pointed out. The comparative views are critically examined.

## 5.1. What is the nature of ethics in relation to morality?

### 5.1.1. Ethics

In this book we consider the foundation of ethics to be the moral law. Contrarily, in mainstream terminology ethics is defined as values manifesting human behavior in congruence with certain civil conduct that are commonly agreed upon by society at large (Spencer, 1978). In reference to the social preference basis of ethics and morality we can adopt formalization by using two different approaches. One approach is to consider linear aggregation of preferences. The other is to treat morality and ethics within complex aggregation types.<sup>1</sup>

In such a definition, the foundation of ethics lies on rationalism that sets the scene for interpreting whether a certain human conduct is acceptable or

<sup>1</sup> Let the  $i$ th individual preference map used to preorder a set of rational choices be denoted by  $\geq_i$ ,  $i = 1, 2, \dots, n$ . Consider the three choices, A, B, and C. Individuals in a family governed by methodological individualism will likely preorder preferences as  $A \geq_i B \geq_i C$ .

The collective preferences of the family governed by independently distributed socioeconomic states and  $i$ -number of individuals is

$$\cup_i U_{\text{states}}\{\geq_i[A, B, C]\} = \cup_i[\geq_i(A) + \geq_i(B) + \geq_i(C)], \quad i = 1, 2, \dots, n.$$

If for a larger number of individuals  $i$ , state A dominates in the preordering as shown, then  $\geq_i(B)$  and  $\geq_i(C)$  become decreasingly relevant preferences (irrelevant preference in the limit (Arrow, 1951). Now  $\geq_i(A)$  dominates over B and C. Consequently, social preference ( $\geq$ ) arising from the community is reflected in  $\cup_i[\geq_i(A)] = \geq(A)$  say, now independent of  $i$  due to the dominance of this preference.

Next apply  $i$ th individual utility index in  $h$ th community,  $U_{ih}$ . The result of linear aggregation is  $U_h$ :

$$U_h = \sum_i U_{ih}(\geq(A)), \quad \text{with } U_{ih}(\geq(A)) > U_{ih}(\geq(B)) > U_{ih}(\geq(C)), \quad \text{over the three states.}$$

Hence utility maximization objective of neoclassical community utility function rests simply on  $U_{ih}(\geq(A))$ .

For complex aggregation, let  $\{\geq_{j,k,h}\}^i = \{\geq_{j,h} \cap \geq_{k,h}\}^i$  denote interactive preferences of the  $j$ th individual ( $k$ -individual) in the  $h$ th community,  $j, k = 1, 2, \dots, n$ ;  $h = 1, 2, \dots, m$ ;  $i$  denotes the number of intermember interaction on given issues. Let the  $j$ th ( $k$ th) preference be of a specific ( $h$ th) leader-of-the community.

The community preference  $\geq_h = \lim_i[\{\cup_{j,k}\geq_{j,k,h}\}^i] = \lim_i[\{\cup_{j,k}\{\geq_{j,h} \cap \geq_{k,h}\}^i]$  is the mathematical union of the above individual preference map over ( $j, k$ ) for  $i$ -interaction.

The social preference  $\geq$  equals aggregation of  $h$ -community preferences:

$$\geq = \cup_h \geq_h = \cup_h \lim_i[\cup_{j,k}\{\geq_{j,k,h}\}^i] = \cup_h \lim_i[\{\cup_{j,k}\{\geq_{j,h} \cap \geq_{k,h}\}^i]$$

This expression shows that social preferences are formed interactively (shown by  $\cap$ ) and are integrated (shown by  $\lim_i[\cup_{j,k}(\cdot)]$ ) in given rounds of community discourse ( $i$ ) on issues of common interest.

The community members'  $j, k$  interactive well-being is represented by  $W_{jk}^i(\theta_h^{i*}, \text{Sp}_{kh}^i(\theta_h^{i*}))[\lim_i[\{\cup_{j,k}\{\geq_{j,h} \cap \geq_{k,h}\}^i]$ .

not. Such a choice is determined by the sway of common human reasoning, which now establishes human behavior or institutional conduct as ethics. An example is the ethics of pro-choice and gay-marriage, the impress on which to be accepted in many societies and nations has arisen by the political acceptance, and thereby, the condescension of the public at large to accept these ways as ethics.

Likewise, the books of science and argumentation like *God Delusion* by Richard Dawkins (2006), the sanction of war and pillage on sovereign states by the wield of global governance, and the entire type of reasoning of scientific discoveries by the power and argumentation of the condescending society on specific matters such as stem cell research, all of these and more establish a condescending society's understanding of ethics as it wants to define this under conditions of political, economic, and social power and privileges. Variation in the definition of family from the traditional one to those of today with cohabitation and same-sex marriages are sanctioned by the force of political and market power that link such behaviors to rationalized ethics. Ethics may thus be divergent human behaviors or can simply spring from humanism. Ethics does not have to necessarily arise from the moral law. Likewise, ethics may not necessarily reinforce the moral law.

### ***5.2. Ethical perspectives: Rawls' game theory and ethical behavior***

When so understood, ethical conduct in economic jargon is a rational conduct based on a competitive view of alternatives available to free and rational choice economic decisions. Take the case of Rawlsian maximin game of rational choice on social justice and economic efficiency. One can try to understand the underlying conflict between these opposing ends in Rawlsian maximin game with liberal choice margins (Wolff, 1977).

The maximin game is terminated in Rawls reconstructed Original Position by making the underprivileged socially well-off. This is Rawls' idea of social justice by using his Difference Principle that requires individual and institutional changes to improve well-being of the most underprivileged – but at a saddle point of the maximin–minimax game that makes maximin = minimax (Shubik, 1957). In this expression, the resource allocation position showing the worsening of the social condition of the privileged citizens at the cost of improving the well-being of the underprivileged means that a social trade-off has resulted. Besides, such a trade-off trajectory marks the nature of evolving institutional and individual corrections to look after desired trade-offs between social justice and economic efficiency. A situation of this type is no exception to the usual opportunity-cost-based social welfare frontier. This must be necessarily true also with the question of trade-off between social justice and economic efficiency in reference to the core postulate of economic scarcity.

The treatment of Rawls' Original Position continues to accommodate the opportunity cost concept, and the competition and optimization approaches

of resource allocation. These conditions of resource allocation determine the socially determined distribution of social justice and economic efficiency. Consequently, the trajectory of such resource allocations that explains the evolutionary nature of Rawls' Difference Principle to maximize the well-being of the most underprivileged citizens is like the expansion path of resource allocation in a problem of output maximization subject to the resource constraint. All these take us back to the established theory of resource allocation in the light of the aggregate production function constrained maximization problem.

The consequence is damaging to Rawls' claim that he looks into the socioeconomic system from a nonutilitarian point of view (Rawls, 1971). This counter argument contra-Rawls can be seen from the fact that the generalized aggregate output maximization problem can now be examined in terms of maximization of the output, subject to the constraint of allocation of utilities between the privileged and the underprivileged. A special case of intertemporal distributive utilities is the present-value equation of future cash flows and benefits (Jean, 1970).<sup>2</sup>

Hammond's (1987) fundamental utilitarian formulation of the social welfare function with the ethical preceptor in it is a prominent theoretical version of how social justice is treated as an *exogenous* precept in the midst of economic and social organizations. Rawls' social welfare function can be reformulated in terms of Hammond's problem of social choice. On this issue we note that the higher weighting of welfare distribution of the underprivileged makes the resource allocation trajectory of the social economy evolve according to Rawls' Difference Principle with continuously evolving points of Rawls' Original Positions.

In the end we note from all such welfare consequences that despite his claim, Rawls is altogether a neoliberal libertarian and utilitarian. This fact has been proven above to be true in respect to the idea of social justice as a substitutable goal of a two-sector (hence, many sectors) social economy with social justice and economic efficiency. Choudhury (1993) has

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<sup>2</sup> Max  $\int Q_t e^{gt} dt$  (accumulation of output by intertemporal aggregate production function;  $g$ : average annual growth rate of output  $Q_t$ )

Subject to

$$\int U_{up}(Q_t)e^{-\delta t} dt = U_0 + \lambda \int U_{pr}(Q_t)e^{-\delta t} dt$$

(discounted welfare function  $U_{up}$  of underprivileged (up) subject to the discounted welfare function  $U_{pr}$  of the privileged (pr)); and,  $PV(i, Q_t) = \int CF(Q_t)e^{-it} dt$  (discounted cash-flows over time.)

If utility functions are expressed in terms of their respective discounted cash flows, then too, the simplified version of the constrained maximization problem in respect to Rawls' maximin = minimax condition yields the utilitarian perspective.

elaborated on this type of anomaly in Rawls' reflections on neoclassicism, neoliberalism, and utilitarianism.

### **5.3. Other contemporary ethical perspectives with neoliberal utilitarian backgrounds**

#### **5.3.1. Karl Marx**

The failure of identity between neoliberalism and utilitarianism on the one hand and the claimed rejection of these epistemological origins in Rawls on the other is repeated with early Marx. Marxism's failure is evident in its earlier neoclassical tinge of thinking.

For instance, Lange (1938) has shown that a concept like economic efficiency defined by relative prices of alternatives is provable in Marxist postulate of social equality. On this, which he wanted to establish by transferring power to the proletariat issue, Marx's expansion path for the social economy can be represented by presetting the resource allocation points by assigning specific capital/labor ratios. Now a greater degree of egalitarianism in favor of labor as the primal input of production requires a lower capital/labor ratio. Consequently, a higher substitution of labor for capital occurs in combining fixed capital with organic capital for aggregate production of output (Blaug, 1968a, 1968b). Since the capital/labor ratios are set as parameters of technological choice in the production menus (Morishima, 1964), all the ramifications of constrained output maximization reenter the resource allocation problem. Thereby, competition and scarcity for resources reveal the early neoclassical nature of economic reasoning in Marx and his protagonists.<sup>3</sup>

The postulate of resource scarcity leads into the axioms of competition, maximization, steady-state economic equilibrium, and price-mechanism. The combined effect of these postulates on factor substitution as pointed out above according to technological choice, causes the factor prices to be fixed. Thereby, the relative prices of the goods that use the given factors according to their prescribed intensities are assigned. The only cause that makes such price relative to change is exogenous in nature, including the time-variation effect.<sup>4</sup> The end result is a nonorganic form of social and economic transformation in which ethics remains simply a datum

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<sup>3</sup> Lange (1938) treats the usual form of welfare maximization for a socialist economy a la Marxist agenda of income distribution. He writes the optimization results as relative price equality in terms of marginal utilities.

<sup>4</sup>  $(d/dt)(p_1/p_2) = (p_1/p_2)[(1/p_1)(dp_1/dt) - (1/p_2)(dp_2/dt)] \Rightarrow g(p_1/p_2) = g(p_1) - g(p_2)$ , the terms can each have positive signs. In this expression,  $p_1/p_2$  denotes relative of the two prices.  $g(.)$  denotes percentage change over time. Hence, there exists the possibility of time-shifts for relative prices.

exogenously considered, not endogenously integrated as cause and effect with the social and economic systems.

The end result arising from a neoclassical interpretation of Marx's theory of social change, and the theory of value in terms of prices and factors of production (especially labor theory of value) is damaging for Marx's theory of political economy. First, we note that contrary to what Marx claimed, his theory of social transformation is not an organic explanation of change at the theoretical level of explanation by its neoclassical roots. Dasgupta (1987a, 1987b) in fact points out that all of economic theory and political economy has persisted in one or another meaning of substitution between competing and displacing alternatives. This is the way that the marginalist hypothesis is made to run through the economic, social, and scientific veins. Second, we note that Marx had no consideration of ethics in his theory of value (Berman, 1983). Ethics and morality for whatever reasons that he would like to use do not enter as endogenous elements of Marx's historical dialectics to explain social transformation. Third, the dependence of price setting on factor prices with an enforced labor/capital ratio of technological change along an exogenously driven expansion path is tantamount to an organically nondynamic idea of change.

### ***5.3.2. The Austrian economic thought***

The Austrian contribution to organic learning behavior along the trajectories of creative destruction (Schumpeter, 1961), enterprise and innovation (Kirzner, 1997), and evolutionary form of development (Hayek, 1945) are important issues to examine in the light of how ethics can be postulated to explain social transformation. The organic nature of change, as in a theory of capitalism (Heilbroner, 1985) and modernity is expressed in the following words by Giddens (1983, p. 44):

Functionalist theory conceives of society as a system of 'present' parts, analogous to the parts of an organic system. What is lacking in this view, in addition to deficiencies previously noted, is the idea of the duality of structure as 'binding' the interplay of absence and presence in the *duree* of social interactions. This is indeed a notion which links the moments or instantiation of social activity to the properties of collectivities or social wholes (the structural properties of social systems).

What we notice in the organic meaning of social transformation in the above-mentioned thought is a substantive emphasis on the understanding of "process" underlying transformation and transition. But in terms of the end-goal of convergence of all such organic learning, there is simply the enforced direction toward neoliberalism, democracy, and Occidentalism (Fukuyama, 1992). All these problematique mean that the inherent reasoning self-references by means of a hegemony that is enforced over every other worldview. We find this to be the case with Hegel (Sibree, 1956;

Garaudy, 1985) in his dialectical explanation of supremacy of Occidental civilization.

Contrary to such hegemonic driving forces, true logical reasoning needs a natural convergence, and its process to be freely revealed in the scheme of things. This also means to be normatively explained and functionally directed into positive applications. The grand historical process and the science of cybernetics as systemic thinking by the episteme of organic unity of knowledge in “everything” that we referred to earlier must be unraveled in a convincingly natural way. No one can avoid its clarity of vision, except to arrogate over it. If there is no such end-goal for convergence of the human future then the socio-scientific consequences can only be enforced by power and hegemony. Such a change remains unsustainable across the great expanse of interrelated totality of free beings.

#### ***5.4. The nature of entrepreneurship model in neoliberal constitution***

The entrepreneurship learning model, particularly of the type vouched by the Austrian evolutionary economics school cannot be tenable over the *longue duree* in the case of its nonconvergent evolution by a natural free will. The example is a kind of a historical evolution of markets, institutions, and ideas under the liberal and neoclassical perspectives described by Douglas North (1981). The fact is that in such an evolutionary historical model of economic transformation, technological change driven by competition and private ownership configures the landscape of human future. Institutions enable the interrelationships to continue between individuals, economy, and society, repeating thus the social contracts based on methodological individualism. Such relations have driven Occidental historiography and portend the future of liberal constitutionalism (Buchanan & Tollison, 1972).

Now consider Max Weber's (Mommsen, 1989) kind of entrepreneurship model of capital formation and private ownership of property, asset, capital, and wealth. We note that Douglas North and Buchanan's future social worlds as continuation of the historical past involve economy, society, institutions, and individuals that uniformly copy the postulate of methodological individualism in all such embeddings. Here we find methodological individualism as the neoliberal idea entrenched in both a peculiar understanding of the scheme of things and in human behavior and organizations departing away from the convergent and unifying nature of human community. Yet upon the unifying social constructs the sustainable communitarianism and its entrepreneurship model rest. Weber's idea of capitalism and its projection in liberal Occidental socioeconomic history fails to explain the ethical foundations of human community within an embedded world-system of balance and solidarity, except to impose the hegemony caused by the rise of Protestant Ethics on the acquisition of



wealth and power. Such Weberian ethics linked with work and private ownership mark the entrepreneurship model premised on competition, acquisition, and communal distribution and ownership. This is despite Weber's inhering religious overtones in his writings.

Such a nature and dynamics of capitalism (Heilbroner, 1985) and its indelible mark on the economic, social, and political history of the Western World is its own unique and universal worldview of creative evolution across history (Wallerstein, 1974, 1998). Yet it is one of hegemonic change. Therefore, it projects a nonsustainable model of human future (Tisdell, 1989).

### ***5.5. Ethics qua morality***

Unlike ethics, which derives its meaning from rationalist humanism, morality is premised on the foundations of time-invariant values that establish common heritage of all peoples across space and time. The elements of space-time invariance and its commonality in different peoples together establish the uniqueness and universality of the moral laws. The moral law equally grounds the worldly affairs and the natural laws. The classics called this essence of the moral law as natural liberty. Its implementation was found in the normative and positive laws.

The nature of ethics and values derived from the foundation of the moral law is different from the humanistic understanding of ethics and values. In this latter case there is no reference to any moral law. Even the moral philosophers of the Occidental World denigrated religion and morality to base positions when writing on the theme of ethics and values. Consider the following pronouncements of Kant (1963, p. 80, 81) on the matter of religion, the moral law and worldly ethics and values:

A clear exposition of morality of itself leads to the belief in God. Belief in this philosophic connexion means not trust in a revelation, but trust arising from the use of the reason, which springs from the principle of practical morality.

Religion is the application of the moral laws to the knowledge of God, and not the origins of morals. For let us imagine a religion prior to all morality: then this would imply a relation to God, and would therefore consist in recognizing Him as a mighty lord whom we should have to placate. All religion assumes morality, and morality cannot, therefore, be derived from religion ... (Kant, 1963, p. 81)

Moral law is, therefore, relegated to the same level as human reasoning on morality. It is not based on a direct invocation of any divine text. Thereby, God and the divine law, as in the case of the precept of conscious oneness, remain extraneous to Occidental understanding of human experience. This was the reason for the independence of Kant's pure reason from practical reason. The two failed to interconnect to define the essentially complementary and interrelated nature of all world-systems.

The substantiation of the divine foundation as the episteme of the moral law, which then projects the worldly laws in the light of the moral episteme, is unknown in all of religious traditions except in *Tawhid*. This is a conclusion coming out of a historical analysis of civilization thought (Lukacs, 1817). It is equally true of the aberrant history of scholasticism among Muslims in the past and the present. The matter has particularly plagued the development of Islamic economic, finance, and banking doctrines out of an epistemological void.

### ***5.6. Descartes and Kant on the moral law***

Descartes' logical positivism (Descartes, 1954) found expression in the search for certainty out of doubt regarding the laws that govern the universe.

On the same matter of fusion between the normative and positive laws Kant (1949a, 1949b, p. 261) wrote:

Two things fill the mind with ever new and increasing awe and admiration the more frequently and continuously reflection is occupied with them; the starred heaven above me and the moral law within me. I ought not to seek either outside my field of vision, as though they were either shrouded in obscurity or were visionary. I see them confronting me and link them immediately with the consciousness of my existence.

But even as Kant and the classics wanted to premise the moral law on the precincts of the a priori law of pure reason, they suffered from the problem of heteronomy. Kantian domain of reason denied the sciences to make the pure and practical reason blend in a cohesive holism. The problem of heteronomy was pointed out earlier (Carnap, 1966). It was and continues on to be today at the center of the problem of dichotomy in the matter-mind spiritual realms of consciousness. Yet truly, consciousness is organically unified in these realms. The unified realms establish the holistic nature of the phenomenological model of the universe. In it, the space-time structure of the conscious universe is a deduced subset of the overarching knowledge-time-space dimension. Space-time limitation in epistemological thinking does not take us far afield into the truth of "everything." This kind of the phenomenological structure of the universe was pointed out earlier. The precept appears in Byron's poesy: "On the shores of this wide world I stand and think; till love and fame to nothingness do sink."

### ***5.7. Cosmological extension of the moral and conscious law***

The universal extension of the moral and conscious law is found in Einstein (Bohr, 1985) and Hawking (1988) as well. Einstein (1950)

wrote: “Ethical directives can be made rational and coherent by logical thinking and empirical knowledge.”

Einstein continues on:

It is the privilege of man’s genius, impersonated by inspired individuals, to advance ethical axioms which are so comprehensive and so well founded that men will accept them as grounded in the vast mass of their individual emotional experiences. Ethical axioms are founded and tested not differently from the axioms of science. Truth is what stands the test of experience.

Hawking (1988, pp. 15–16) wrote:

The eventual goal of science is to provide a single theory that describes the whole universe. However, the approach most scientists actually follow is to separate the problem into parts. First, there are the laws that tell us how the universe changes with time. ... Second, there is the question of the initial state of the universe. Some people feel that science should be concerned with only the first part; they regard the question of the initial situation as a matter for metaphysics or religion. They say that God, being omnipotent, could have started the universe off any way he wanted. That may be so, but in that case he also could have made it develop in a completely arbitrary way. Yet it appears that he chose to make it evolve in a very regular way according to certain laws. It therefore seems equally reasonable to suppose that there are also laws governing the initial state.

In his search for the principle of universality, Trefil (1989) holds the view that the laws of the natural sciences are no different from those of the social sciences. The difference is only in the way that the pursuants of these disciplines look upon reality. Thus, cultural overtones do make up the ingredients of the theories that different scientists propound in examining an analytical problem. Trefil (1989, p. 39) remarks

In this way, a scientific theory is no different from a novel or a painting. But once the theory is there, the process of verification proceeds in a way that is largely independent of culture, and only a theory that has survived this process can be accepted as a genuine law of nature.

In our analysis in this book, the moral law as opposed to the ethical law or a cursory understanding of morality from a rationalistic viewpoint remains at the foundation of universality. The rest of the rationalistic doctrines are random experimentations with unsettled conclusions. These cannot be verified for any length of duration. They are categories of the *short dure*. Our search for the universal principle of the moral law lies on the methodology of the phenomenological model that permanently explains the universe in all its details. We have explained this moral and universal episteme thus far to be the unity of divine knowledge. It is ontologically explained through a phenomenological model of knowledge and the world-system across continuums of knowledge–time–space structure.

Nonetheless, the solely deductive logic of a moral reality severs science from the episteme of belief that determines the moral law in the first place. By doing so, the moral law is placed as the guarded niche of all worldly

realities. Against such epistemic origin of the moral law, reasoning, and phenomenology are shaped and interpreted (Choudhury & Hossain, 2007).

### 5.8. Adam Smith and the ethical law of natural liberty in economics

The theory of natural law and the normative, and positive laws within it, have been brought to bear in economic theory as well. Adam Smith wanted to equate the liberty of human decision-making and choices to the kind of freedom that exists in nature. Market processes were thus construed as being free and best run in the absence of intervention. This principle of *laissez faire* impacted upon institutional, political, and social organizations just as they determined individual behavior and market exchange. Adam Smith argued that human sentiments are best developed in the midst of economic cooperation by each looking after the well-being of itself. This was an ethical idea that emulates the cosmic balance in the natural law, very similar to Farabi's Hellenic conception of balance in Islamic scholasticism.

What went wrong in Smith's ideas of the moral sentiments was of a methodological nature. Methodology here means the nature and origin of the wealth of nations. In the specific case of the moral law, the question centers on the moral epistemic origin of the methodology at work in the world-system.

First, the monadic type independence between entities in the midst of their own self-interest made them noninteractive. This was the way of the classics in describing a linear and noncomplex world-system. Monadism in philosophy of science was proposed by Leibniz (Schrecher, 1965). Upon the monadic view of change, the idea of small and subtle increments in a socio-scientific variable, while keeping all other variables constant, became the method of partial differential calculus. This kind of method gave Adam Smith his idea of change *ceteris paribus*. Thereby, the organic learning capability was denied to the socio-scientific order. If then the social entities were to assemble them in cooperative forms, as by a market exchange or community, then such a grand ensemble was seen simply as a lateral aggregation of the optimized entities existing in their monadic forms of independence of relations. The aggregation of preferences and menus of the entities, as of buyers (consumer preferences) and sellers (production menus), was either lateral (e.g., utilitarianism) or a linearly aggregate production menu. In either of these there was no identifiable ethical preceptor. The latter was the case also with both classical macroeconomics (Wicksell, 1935) and latter-days' Keynesian aggregate production and economic growth.

Second, the exogenous separation of God and the divine law from the moral law made the latter to be of a rationalist category. Its only speciality was the invocation of a historical understanding of morality, whose roots

could be in religion, culture, or individual rationality. An example here is the moral roots of Weber's Protestant Ethics, but which remained socially differentiated in its meaning, unlike the moral roots of Tawney's Good Society (1948). Thus, often nonconformable and diverse derivations of the moral law were invoked. In such differentiated moral derivations the ethics of market exchange rested on competition and private property ownership as the manifestations of individualism, while society was a marginal other. The resource claims and allocations in the world-system were governed as if by the motto, "Give unto God what is God's and unto Caesar what is Caesar's."

Likewise, the principle of social justice is considered as the moral law, but not necessarily *derived* from the divine text, as in the case of Rawls' *A Theory of Justice*. But this moral law in the *Tawhidi* context is severed from the utilitarian and economic axioms of resource scarcity and competition. These latter axioms represent the ethical basis of the market and economic order. The result is indispensability of the postulate of marginal substitution at the cost of pervasive complementarities and learning interrelationship between the goals of social justice (poverty alleviation) and economic efficiency (economic growth and development).

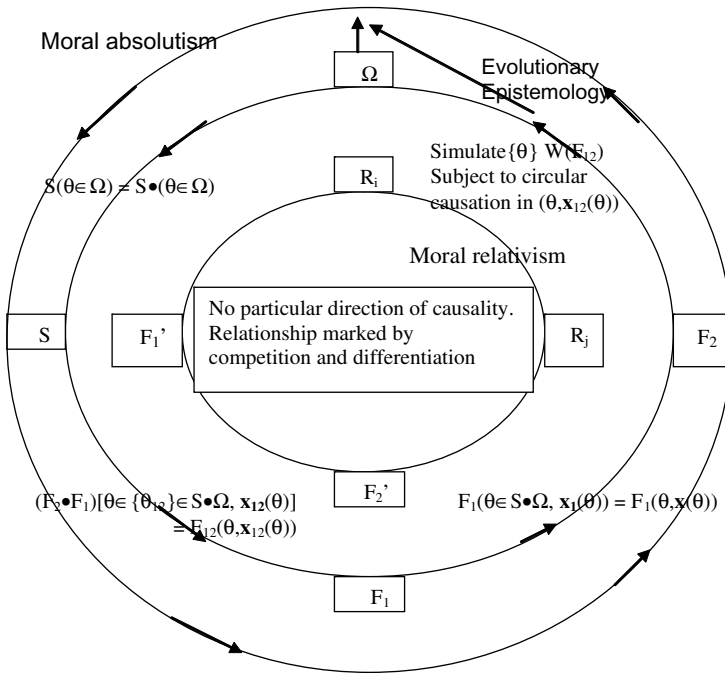
Sustainability and distributive equity have become catch-words of development theory (Todaro, 1977). These comprise ethical values of development (Goulet, 1995). Yet the correct methods of understanding and implementing such development paradigms are unknown in mainstream economic and social theory. Now both the moral law and its consequences in ethical values in socioeconomic development remain dysfunctional because of the absence of proper methods, development-financing instruments, and an epistemic reference to foundational questions of paradigm change (Goodman, 2003). Indeed, for such cleavages in economic reasoning, Milton Friedman (1953) could not think of any ethical values other than profit-maximization in economics. Hayek (1976) thought of social justice as a mirage in market catalysis.

### 5.9. Ethics qua morality: a visual understanding

The differentiated notions of morality between its divine foundations and rationalistic perceptions; and of ethics having a correspondingly different meaning, can be explained by means of Figure 5.1. The following symbols are defined:

- $\Omega$  denotes the episteme upon which the moral law rests.
- $S$  denotes the ontological mapping of "bits" of  $\Omega$  on to the primal construction of knowledge and belief signified by the case of Imam Fakhruddin Razi's *ubudiyya* model of self-actualization.
- $F_1$  denotes the *functional ontological* mapping on establishing rules and instruments that are formed by discourse on specific sets of socio-scientific issues under investigation.

Figure 5.1. Contrary evolution of moral absolutism and moral relativism



- $F_2$  denotes the functional ontological mapping from the domain of rules to their enactment on the world-system specific to the simulation of problem-specific well-being with circular causation relations with unity of knowledge for the problems under investigation.
- $F_3$  is the evolutionary continuity of pervasive complementarities that is unity of knowledge represented in the world-system for the problems under investigation.  $F_3$  is coevolved by trajectories similar to  $\{(\Omega, S) \rightarrow (F_1, F_2, F_3, \dots)\}$  through compound maps denoted by “•.”

Each of the  $F$ 's operate on the systemic entities, such as  $\{\theta, x(\theta)\}$ , with  $\theta$  denoting knowledge-flows based on the episteme of the moral law (unity of knowledge). Such knowledge-flows are derived at various levels of the  $F$ -operations through the process of discourse and in cognition of the working of the divine law on the world-system pertaining to the interrelated problem under study. Knowledge-flows are derived from the axiomatically established unique and universal episteme of  $(\Omega, S)$  as the super-cardinal topology of the totality of knowledge (Maddox, 1970).

The above-mentioned functions are all formed in reference to the divine text. They are functional ontological mappings and are pervasively continuous in the knowledge–time–space dimension. Contrary to these

ontological functions are the rationalistic ones. These relate to the rationalistic construction of the moral law and the derivation of ethics either from these rationalistic moral roots or by sheer rationalistic arguments independent of the moral origins. We denote all functional relations in the rationalistic plane of operations by lower case letters. There is no unique and universal episteme to start off the moral dynamics in rationalism. The internal part of Figure 5.1 relates to the moral-ethical relations of rationalism.

The essential moral law showing moral absolutism is shown by the episteme of the divine law ( $\Omega, S$ ). According to this praxis, the discursive society is established by the medium of  $F$ -relations. These enable the transmission of the moral law, its interpretation, and implementation in the world-system by choices of socio-scientific variables and policy-variables, programs, and instruments. The  $F$ -functionals are inter and intrasystemic. Pervasiveness and continuity in perpetuity of the learning phenomenology of the moral law are marked by the direction of the arrows through the postevaluation of the social well-being criterion function. This marks the evolutionary epistemology into higher levels of moral consciousness.

Contrary to the learning process of moral absolutism premised on the divine law is the relational world-system caused by moral relativism. The absence of specific directional arrows in this case implies the absence of an established way of learning. Competition and rationalistic experience determine the differentiated directions of relations that emanate. Ethics qua morality is defined by the subset of specific ways of learning out of the phenomenological relationship of moral absolutism.

Ethics qua rationalism is not well defined, since the relations of rationalist experience remain undefined in a holistic sense. Moral relativism is also defined by the setting of the rationalistic origin of its moral law. This is contrary to the infallible foundation of the divine law, which is a text given by God as the Law Giver. The divine law then establishes the driving force of explanation and change.

### ***5.10. Social and economic influence of religious morality: the papal encyclicals***

Opposed to moral relativism of a rationalist origin, the Catholic bishops have thought of applying the principles of the gospels to social and economic reconstruction (Nitsch, Phillips & Fitzsimmons, 1994). Roach (1994) and Byron (1994) focus on the social meaning of community and the common good according to the papal encyclicals, such as the *Centesimus Annus*, *Rerum Novarum*, and *Mater et Magistra*. The social problems are highlighted for the Catholic Church in the spirit of the church as “a people on pilgrimage making progress by the light of faith.” The common good is

seen as the rule of social justice to all in the community at large. The community, in turn, in the eyes of the church is seen as human life in the life of the community. Thus, the idea of a good society is intrinsically linked to life in community. Skok (1994, p. 280) points out how Pope John XXIII and Pope Paul VI understood the concept of the community from the point of view of the church: "... the church [is] a community of believers living within the larger community of the people of the world. This believing community was to be servant to that larger community, to make the reign of God more apparent and more effective in their lives through the overarching of the situations of oppression and poverty."

Yet the social questions are identified in the context of the space and time situations of major problems. The Catholic Church identifies these problems as being the condition of labor, social justice, poverty, and dignity of the collective community that breaks down the ego of rugged individualism. But in the sense of the community, the multifarious social problems ought to be understood and addressed within a generalized system approach where each issue is organically linked to and unified with another. Alleviating rather than fully solving the outstanding problems requiring redress is carried out in the milieu of an integrated approach to the interrelated issues. None of these problems and issues can be taken up piecemeal with policies focusing on them separately.

To approach piecemeal issues and problems in the interrelated way would be an ethical one. It could also be contained within moral relativism when the issues of social justice and distributive equity become predominant ones, but result in a trade-off with economic growth and materiality. This kind of marginalist trade-off that spans all of economic, social, and scientific theories is unacceptable from the essential moral high ground that is premised on the divine foundation. The generalized objective criterion of the essential moral law aims at the attainment of belief on unity of knowledge and the entities of the problems under investigation.

The Catholic Church is not unaware of such an overarching social criterion function. It has fostered the focus on human solidarity, the need for reformation of the inner dimensions of man, and the need for affinity between God and His creation. But it is in the last of these concepts, which is to understand the human person in the image of God, which is a statement of central importance to the social enunciation by the Church, that much of the objective meaning of morality, ethics, and the moral law is lost. We explain this point further on now.

On etymological grounds there can be no resemblance in concept or form between God and the world, of which is man. Man has not been created in the image of God. Man is the vicegerent of God on earth to carry on the commands and duties divinely ordained on him. Otherwise, there would be a union of the two existences in shape and form. This is impossible. Rather, God is the ultimate Law Giver. But since the



ontological existence of God is indescribable, therefore, a notion such as the quiddity of the divine being remains incomprehensible. Only the unity of the divine law defines the role of God's existence and functions in human beings and the world-system. As it was pointed out earlier, the super-cardinal completeness of the divine law of unity of knowledge yields the essential moral law for the scheme of things. This is a generalized result of the principle of pervasive unity of existence.

Departure from this moral law causes social entropy. This becomes the work of falsehood. It must be changed by moral reconstruction. Now within the medium of derived rules, their interpretations, and the relevant instrumentation to realize them in experience, together form the ethics and values arising from the divinely ordained moral origin. The moral law thus remains primal, and ethics and values follow. Such causality establishes God as the principal Law Giver; whereas, the divine law starts off the order of creation in every detail. In this way, the anthropomorphic meaning of God and the world is annulled.

### ***5.11. The essentially moral context of community and the common good***

The arguments given above have wider consequences on the essentially moral contexts of the concepts of community and the common good. The implications of [Figure 5.1](#) in respect to moral absolutism can be invoked to establish the moral context of community and the common good.

#### ***5.11.1. The moral community***

The moral community is a union of pervasively complementary agencies, institutions, and their representative instruments and variables that put into place the possibilities of the unified solidarity. For this to actualize, the absolutist moral foundation assumes a unique and universal phenomenology of unity of knowledge. It must have its divine text, which is fecund in its completeness and absoluteness over diversity of experiences. The divine text must be interpretable, and thereby applicable to diverse experiences. There is no differentiation of the moral phenomenological methodology applied to "everything," despite the diversity of issues and problems under investigation.

The moral community is thereby the union at the human and natural levels that activate and regenerate learning out of the premise of unity of knowledge based on the invariance of the divine law. No other system exists other than the absolutist moral text to offer the praxis of invariance of its methodology spread across diversity and through free and tolerant discourse relating to the investigative inquiry on the scheme of things.

Because the moral community in its formation carries the moral law from the episteme of its origin by discourse to the practical realms of interpretation and application, it does not have an ecclesiastical or theological tinge. Its knowledge domain is fully participatory in nature. The discursive medium of mind and matter studies the participatory dynamics in the framework of unity of knowledge, and thereby, reconstructs a fallen science, society, and economy out of broken conditions of relational unity of knowledge and being. Such a constructive and sustainable experience exists in perpetuity across the knowledge–time–space dimension. Thereby, the moral community perpetually learns in unity of knowledge out of the divine text.

In the end, we note that the mosque, church, or synagogue cannot represent the community. They are simply institutions to promote the moral community on earth. But the great human community of the moral law is the active and meaningful world-system, where mind and matter unite to give shape and form to a sustainable society that perpetuates on the basis of its epistemic reference to unity of knowledge. In Islam such a moral community is referred to as the *ummah*.<sup>5</sup> Christianity calls it Catholicism of the Church (Roach, 1994, p. 11).<sup>6</sup> In Islam reference is to *Tawhid*, the worldview of unity of knowledge and the unified world-system.

### 5.11.2. *The common good*

The common good is the life-sustaining good and service of the community in the light of the learning experience of simulated well-being that represents the degree to which unity of knowledge has been attained in the community at large. Because of its characteristic of sustainability, the common good applies to the well-being of both the present and the future generation across overlapping generations that can participate in determining resource allocation and needs (Agius, 1990).

Because of its moral and morally derived ethical nature, the common good is also a social good and a spiritual good (Zohar & Marshall, 2004). Examples of such spiritual goods are dynamic basic needs. The relevant

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<sup>5</sup> *Qur'an* (2:143): “Thus We have made you, a just nation, that you be witnesses over mankind and the Messenger (Prophet Muhammad) be a witness over you.”

<sup>6</sup> Roach points out the community perspective of the church in these words: “The Church needs to be a part of that great public debate from which will come the decisions affecting the public order and the public good. We believe that Jesus’ commandment to love one’s neighbor must look beyond individual relationships to infuse and transform all human relations from the family to the entire human community.”

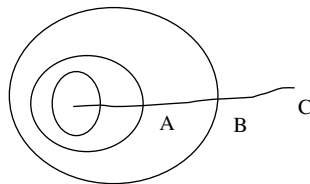
basket was characterized by Imam Ghazali's self-actualization artefacts of life, Imam Fakhruddin Razi's basket of *ubudiyya* goods, and Imam Shatibi's basket of needs, comforts, and refinements.

The essential character of the common good and its equivalents in social goods and spiritual goods is premised on knowledge as essence. Two factors are involved in the market exchange of such goods. First, the consumer reforms and sustains the demand for such goods on the basis of their attributes that represent intrinsic value of the goods. Second, there is an inherent existence of knowledge as essence in all such goods and their reconstructed spiritual and material categories.

In the end, the exchange mechanism for such goods is combined by the above two factors to define the nature of ethical and sustainable markets and communities that arise. The historical trajectory of evolution of such goods represents the life-sustaining *ubudiyya* (worship) regime of development. Every point of such a development trajectory denotes events that are interactively unified (integrated) goods that are simulated (coevolved) along the path of knowledge-flows emanating in the worldly sense, but are primordially derived from the episteme of conscious oneness. Within such a moral-ethics, endogenous process-driven learning trajectories of sustainability of self-governed preferences, complementarities, markets, and institutions, all of market and economic reasoning take their place. Among these is the concept of value, price, well-being, and the coterminous attainment of social goals. Such goods make a substantive difference from Rawls' primary goods in that they are taken away from the rationalist domain of moral relativism and subsumed in the absolute sense of moral absolutism and the community.

The coterminous evolution of ethically endogenous (induced) goods and the development regime of markets and institutions are shown in Figure 5.2. A, B, C are endogenous event points in the evolutionary  $\{\theta, \mathbf{x}(\theta), \mathbf{p}(\theta)\}$ -complex space of IIE shown by evolving circles. These learning spaces include the vectors of variables,  $\mathbf{x}(\theta)$  as socioeconomic variables, as of markets;  $\mathbf{p}(\theta)$  denotes institutional policy-variables and economic and financial instruments. The vectors are all induced by knowledge-flows " $\theta$ " emanating from the episteme of conscious

**Figure 5.2.** *The development trajectory of ethically induced common goods*



oneness in relation to the world-system. The entire trajectory ABC is the multidimensional evolutionary *ubudiyya* development regime induced everywhere by the moral law of conscious oneness. See also Figure 5.1.

**5.12. What is the endogenous learning nature of ethics qua morality in economic and finance theory?**

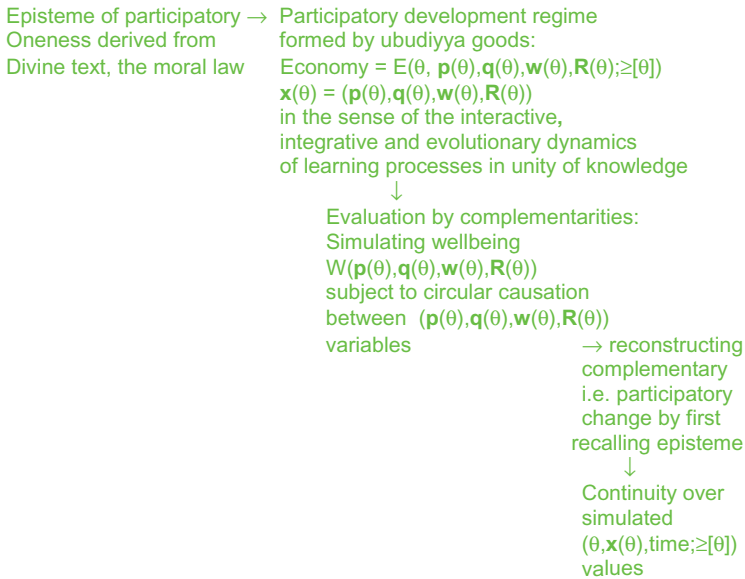
Morality and its derived ethics are endogenous relations that arise from the complete phenomenology of unity of knowledge when premised in the episteme of the unique and universal conscious oneness. There is no other way whatsoever to generate endogenous learning relations in the framework of unity of knowledge. This assertion follows from two argumentations. First, the episteme of conscious oneness is nonexistent in any other but the originally pure divine law and its conscious invoking in our reasoning and worldly application. We have explained such methodological debilities in a cross-section of contemporary and classical socio-scientific doctrines and in the claimed exclusiveness of moral authority. All have resulted in moral relativism or an anthropomorphic way of explaining ethics and values.

Contrarily, ethics that arise from the pure moral origin are strongly endogenous in nature (Desai, 1989). That is, ethics form part of the learning process and are inextricably linked with the episteme of unity of knowledge. Consequently, every event of the world-system is shaped and driven by its induced knowledge-flows. Unity of knowledge impacting upon the world-system creates a unified world-system that is relational by complementarities and participation between the learning entities and their representative variables (Whitehead, 1938). Pervasive continuity of such a learning world-system through the continuous reproduction of knowledge by recalling the episteme every time establishes permanence of the inner dynamics of the emergent phenomenology. The inner dynamics of the learning processes driven by the episteme of conscious oneness is invariantly interactive, integrative, and evolutionary across and within complex systems of relations.

In the resulting ethicoeconomic system of conscious oneness the endogenous nature of evolutionary epistemic relations is represented by pervasive continuity of the following string of intra- and inter-systems:

$$\begin{array}{l}
 (\Omega, S) \rightarrow \{\theta\} \rightarrow \{x(\theta)\} \\
 \downarrow \\
 (\theta, x(\theta)) \rightarrow \text{simulate } W(x(\theta)) \rightarrow \text{recalling } (\Omega, S) \\
 \text{Subject to circular} \qquad \qquad \qquad \downarrow \\
 \text{Causation between} \qquad \qquad \qquad \text{evolution of new} \\
 \text{The variables} \qquad \qquad \qquad \text{Knowledge-flow} \rightarrow \text{continuity}
 \end{array} \tag{5.1}$$

### 5.12.1. Economic specification



(5.2)

As it was explained earlier and shown in Figure 5.2, there is no linearity in the description of the learning world premised on unity of knowledge and its causality in the world-system. Consequently, every event characterized by  $(\theta, \mathbf{x}(\theta), \text{time}; \geq[\theta])$  is a complex and dynamic point in the continuity and pervasiveness of the knowledge–space–time structure. Endogenous character of such events, and thus the entire trajectory shown in Figure 5.2, are complete in unity of knowledge and matter across time without a discontinuity.

### 5.13. *Deknowledge: rationalism as falsehood*

Contrary to the universe of unity of knowledge as explained above, there is the contrary reality of methodological individualism, independence of relations, and nonparticipatory development paradigm. Such conditions leave behind a litter of conflict and competition with ever-increasing differentiation between the entities of world-system. There is no unique and universal text to guide the emergent paradigm of the conflicting and fragmented minds. Reasoning fired by rationalism gives rise to dissociated parts of a nonconstructive whole. The trajectory of change in neoliberalism is pervasively delinked by bifurcation caused by self-interest, conflict, and marginalized deprivation of the competing but weaker opposites.

On the problem of individualism and independence of relations caused by the neoclassical postulate of marginal substitution, Myrdal (1987, p. 274) wrote:

Hundreds of books and articles are produced every year on “welfare economics”, reasoning in terms of individual or social ‘utility’ or some substitute of that term. But if the approach is not entirely meaningless, it has a meaning only in terms of a forlorn hedonistic psychology, and a utilitarian moral philosophy built upon that psychology. I have always wondered why the psychologists and philosophers have left the economists alone and undisturbed in their futile exercise.

The continuous bifurcation of minds by competition and dialectical marginalization of one by another in liberalism leading to the so-called complexity theory in postmodernism is embraced by Wallerstein:

For social science, the rise of complexity studies represents an epistemological revolution. On the one hand, it undermines totally the basis of the concept of eternal TimeSpace, while at the same time rejecting that of episodic geopolitical TimeSpace, substituting for it the rules of social processes for as long as these rules are relevant. For the ‘orders’ that are represented by these rules constantly yield place to periods and ‘loci’ of ‘chaos’ out of which new ‘orders’ are constantly regenerated. This is precisely the concept of structural TimeSpace with cyclico-ideological TimeSpace located within it. (1998, p. 57)

Jean Jacques-Rousseau (1968, p. 71) explained such a phenomenon of the liberal mind in the following words:

It is said that Japanese mountebanks can cut a child under the eyes of spectators, throw the different parts in the air, and then make the child come down, alive and all of a piece. This is more or less the trick that our political theorists perform – after dismembering the social body with a sleight of the hand worthy of the foreground, they put the pieces together again anyhow.

Thus, the endogenous nature of variables and their relations regenerated by circular causation is to be found also in the rationalistic doctrine, agent behavior, and institutions. This is marked by the continuous carriage of the domains of methodological individualism across its own trajectories of change, always showing dissociated organic shapes and forms. They are perpetually caused and driven by the philosophy of methodological individualism. This is the permanent mark of neoliberalism and its rationalistic prototypes. It carries the specter of the final end of liberalism in the oppositely poised world of moral completeness.

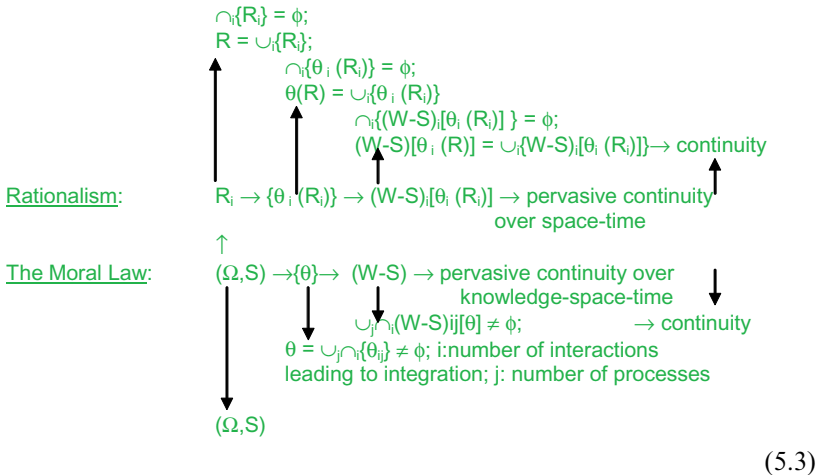
Mommsen (1989, p. 111) writes on Weber’s concern with the future development of bureaucracy and rationalization in organizational theory enforced by the power of management methods. Weber fears that this gaining hegemony would petrify the liberal idea: “... Weber was all too aware of the fact that bureaucratization and rationalization were about to undermine the liberal society of his own age. They were working toward the destruction of the very social premises on which individualist conduct was dependent. They heralded a new, bureaucratized and collectivist

society in which the individual was reduced to utter powerlessness.” Weber was thus lost between the dilemma of pure individualism of liberal making (Minogue, 1963) and collectivism led by self-seeking individualism formed into governance. This, Weber feared, would destroy the fabric of individualism on which liberalism was surmised to have been erected.

In reference to Figure 5.1 showing the contrast between the episteme of conscious oneness and rationalism and in reference to expressions (5.1) and (5.2), we have the following technical explanation of the nature of rationalism as falsehood. Note that the expressions are shortened in representing the learning passage from the episteme of conscious oneness through the process of the world-system.

In expression (5.3) we note that both the understanding of the nature of the moral law and rationalism ( $R_i, R$ ) arise from the unique and universal episteme of conscious oneness. The meaning of this is that rationalism arises as a mathematical opposite (complementation) of truth, which is the episteme of conscious oneness ( $\Omega, S$ ). It cannot be the other way around, for there is complete anomie on the choice of rationalistic origins represented by  $R_i$  along with their differentiated postulates denoted by  $\{\theta_i\}$ . The latter are deknowledge-flows. They are only linearly additive, because of their relational independence and competing and conflicting nature caused by methodological individualism.

We characterize such deknowledge centered relations and their consequences in contrast with the moral law in the following way:



The nature of the anomie in rationalism to well define any form of settled paradigm has been pointed out by Marx and Schumpeter. Marx wrote on the problem of overdetermination of theories and worldviews when plethora of conflicting episteme befores the conceptual predictive power and stability of reasoning. Resnick and Wolff (1987, p. 5) write in this regard:

The contradictoriness of the process of theory appears on two levels. At one level there are differing and often conflicting theories, that is, sets of concepts. Practitioners within each of these spend part of their time in *criticism*, which we understand as chiefly the specification of differences (contradictions) between their own and other theories. At another level each distinct theory or set of concepts is itself contradictory in the sense that tensions and conflicts exist among the concepts comprising the set. Practitioners within any particular theory typically spend part of their time identifying and seeking to resolve those contradictions within their theory that they can recognize as such.

Schumpeter (1961) surmised according to his concept of creative destruction that neither capitalism nor democracy was a permanent feature of the future world – just as feudalism, socialism, and communism have had their impermanence in the annals of history. It can be further concluded that even the paradigms and the reasoning that were put behind these variant human claims were erroneous. Along with the parting of capitalism, socialism, communism, and feudalism, the theories and reasoning backing these are bound to meet their fleeting fates.

This leaves the moral law, as derived from the episteme of conscious oneness, to be the only possible abiding worldview of all times. That is, both due to its knowledge–time–space dimensions of universal explanation, and the inexorable goal of unity of knowledge in essence and practices in every area of human reasoning.

#### **5.14. Conclusion: endogenous forces of ethicoeconomics**

To conclude, we invoke the contrasting nature of the economy and markets from the viewpoints of the moral law and rationalism. We refer to expression (5.1) to examine the different ways of treating any economic problem for the two vantage points, and what expectations can we draw from these approaches.

Combining all the variables of the  $E(.)$ -function, we can formulate the following economic problem. First, we examine the problem from the perspective of mainstream neoliberal economics that is represented by classical, neoclassical, and Keynesian microeconomics and macroeconomics with their various offshoots.

In such a case in economics and finance we have the wealth-maximization problem in terms of the present-value of future discounted stream of net profits. Time-dependent net cash flow as dividend stream is revenue less cost. Thus, the price, quantity, and factor input and factor price variables are used in terms of the resource function. In the underlying multimarket cases as implied in the vector of variables in expression (5.1), the price relatives of the wealth-maximization problem imply they are equal to the marginal rate of commodity substitution between the outputs. Also, the relative factor prices are equal to the marginal rate of technical substitution between the productive factors. The marginal products in these two cases are determined in terms of the resource constraint. Price



relatives of goods arising from the wealth-maximization and resource allocation equilibrium problem take place along time-dependent optimal production frontiers. Factor price relatives are determined along the time-dependent production isoquants.<sup>7</sup>

The precondition of opportunity cost in either of these two cases means that any evolution along the economic expansion path must be exogenously induced by technology, time, external effects of resource augmentation, policies, and other external effects. If time is the only explanatory variable underlying change in these exogenous effects, then there is no effect of dynamic preference mappings in terms of knowledge-flows. Besides, if the knowledge-flows arise from the episteme of unity of knowledge, then along the expansion path no point can be identified as any temporary point of resource allocation out of competition between the substitutes.

In the neoclassical multimarket case it can be further argued that the principle of pervasive complementarities cannot exist, because complements can bundle in groups to set up grouped substitutes. This is coalition to build up competition and conflict between opposite groups. In the commodity world, an example is of sugar for tea and sugar for coffee. Sugar is a complement of both. But if tea and coffee compete in market exchange, the quantity of sugar is competed for by the demand for tea versus coffee for their individual quantity of sugar. Likewise, computer scientists are complements for both Microsoft and IBM, but these are giant competing substitutes of the computer world. Thereby, the quantities of computer scientists in demand and supply are substituted between Microsoft and IBM.

Only when the endogenous nature of knowledge induction that arises from learning behavior induces all the variables of expression (5.1), then time is transcended by knowledge-flows. Time then becomes simply a datum to record change; whereas, knowledge is the primal cause of change. Such changes are explainable and measurable by the circular causation relations between the variables of expression (5.1) in the light of unity of knowledge and the pervasively continuous complementarities between the relational variables, or in the opposite case of deknowledge as well.

Such are the functional causes and effects of ethical endogeneity of the knowledge-induced ethicoeconomic system. It is a property altogether different from and absolutely not shared by the mainstream economic reasoning. Learning in unity of knowledge is the sustainability force of the knowledge-induced ethicoeconomic system. Contrarily, there is no

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<sup>7</sup> Time is, thus, a datum of change; not an explanatory cause of change. Knowledge reproduced in continuity of the knowledge–time–space dimension is the cause and effect of change.

methodology to explain and implement sustainability in mainstream economics. Yet the knowledge model of pervasive complementarities is capable of explaining both the positivistic situation and the simulated normative one. In the positivistic situation, estimation of circular causation relations of the representative variables of the neoclassical marginalist world-system can yield negative relations. These are characterized by competition, conflict, substitution, and trade-off between the entities under the postulate of scarcity of resources. In the simulation case of social reconstruction into pervasive complementarities or participation, the circular causation either yields complementary results between the variables, and hence their underlying entities or the marginalist substitution case is transformed by underlying social reconstructions into complementary ones. Thus, the circular causation system arising from the principle of pervasive complementarities that arise from the precept of unity of knowledge is equally applicable to explain the aberrant case of marginal substitution and the case of pervasive complementarities along with the explanatory differentiations between these.



## CHAPTER 6

# *The Nature of Ethics in Islamic Socio-Scientific Order*

Our argumentation in the previous chapters has established that Islam and rationalism have polar views of reality, and understanding and explanation of events in the world-system. If there is a similarity between these in any case, we argued that the epistemic foundation of the Islamic worldview of *Tawhid* as conscious oneness is to be treated as the phenomenological model of unity of knowledge and the world-system to explain the role of reason in the universal consciousness. In this generalized worldview and its substantively established methodology are included particular case studies. The study of economics, finance, banking, society, and science (Choudhury, 2007a) as diverse disciplines of knowledge are premised on the same general theory with diversity of issues and problems under investigation. These may use different methods of analysis. But the essential methodology, which is the *Tawhidi* worldview of unity of knowledge and the world-systems, remains universal and unique in “everything.”

We have presented our arguments to prove that by the substantive differences in the understanding of morality and ethics between Islam and rationalism, most of the thoughts that have gone in these directions differ substantively. The ontological consequences of the two are also widely apart from each other. This observation is found to be true for both the natural and social sciences. Truly, there is only the wider field of valuation in the purpose of the Islamic law (*maqasid as-shari’ah*) that prevails over every socio-scientific domain.

In this chapter, while invoking the phenomenological model of conscious oneness and the world-system we will investigate the nature of morality and ethics emanating from this worldview. We will point out the substantive nature of their roots in the *Qur’an* and the *Sunnah*. We will make a critical study of some of the contributions to the field of morality and ethics in recent times and in the light of the Islamic scholastic period on the same issues. Our focus in this chapter on using the *Tawhidi* phenomenological model is on the endogenous nature of morality and ethics and economy, finance, banking, society, and science. This chapter is

thus a carryover from Chapter 5 on the same theme in regard to rationalism and a reconstructed general theoretical perspective. But our focus here will be on the subject of Islamic economics and finance.

### **6.1. Definition of morality and ethics in the worldview of conscious oneness**

To establish these definitions we revisit expression (5.3) of Chapter 5. Since this expression describes a phenomenological model of knowledge transmission from its epistemic origin to the world-system by learning processes, therefore, we first summarize the arguments on what can be the nature of  $(\Omega, S)$  in this expression. Our arguments were centered on the contrasting nature of moral absolutism and the ethical meaning so derived. This axiomatic core of the arguments stood up against moral relativism of both the rationalist and religious types on which is premised a different meaning of ethics.

Under the explanations and definitions provided in Chapter 5, Islamic morality is belief and behavior, personal and social, concerning all human involvement including the nature and implications of scientific inquiry linked with the divine ordainment of conscious oneness. From this epistemic foundation all substantive law and modes of belief, action and conduct of experience in the sense of instrumentation of the moral law are derived. The moral law is thus the divine law. It denies moral relativism and plurality of itself. It is absolute, but rendered to human discourse to realize functional understanding of and application to “everything.” The moral law is thus inexorably premised on the *Qur’anic* oneness of the divine law. It is called *Tawhid*. The worldview of oneness in the socio-scientific world-system that the episteme of *Tawhid* cultivates is referred to here as the *Tawhidi* worldview (Choudhury, 2000).

Ethics derived from the moral law as the divine law comprise rules and modes of interpretive applications to all issues and problems of human experience in the light of the law and essence of unity emanating from the episteme of conscious oneness. Because of the absolute nature of the *Tawhidi* moral law, and being derived from this foundation, ethics is not pluralistic, even in the ideas surrounding attributes of love and justice. These precepts of the Islamic moral law are substantively different from the rationalistic premise of moral relativism and ethics. These points were discussed in Chapter 5.

Sustainability of the moral law and its ethical derivations are realized by pervasive continuity of learning in unity of knowledge and the world-system that spans diverse embedded areas of human experience and scientific cognition. Events in this kind of learning nexus occur in the knowledge–time–space dimensions. Knowledge is thereby the essential endogenous element of the phenomenological model of unity of knowledge spanning “everything.” Knowledge-flows derived from the unique and

universal foundation of conscious oneness give the shape (knowledge-induced entities) and form (circular causation relations) of the conceptual and evidential structure of the phenomenological model.

The phenomenological model of unity of knowledge as the foundation of the moral law and of the worldly ethics derived from it along the trajectories of learning in diversity of “everything” is well structured. Its inherent structure is made up of,

- (i) The foundational episteme ( $\Omega, S$ ). This episteme is the sole exogenous premise that determines “everything.” But by itself ( $\Omega, S$ ) is not determined by anything. It remains solely exogenous and self-referencing in terms of everything else that is created by the divine will. Hence ( $\Omega, S$ ) is without plurality and dependence on anything but itself (self-referenced).<sup>1</sup>
- (ii) The interactive (discursive) followed by the integrative (consensual) approach in deriving the moral law (*maqasid as-shari’ah*) from its divine origin goes through the process of *ijtihad* (interpretive research based on the *Qur’an* and the *Sunnah* (Muslehuddin, undated) and *shura* (consultation in the sense of pervasive participation and linkages in the midst of organic unity of knowledge and being).<sup>2</sup> The reference in such a discursive medium of deriving and interpreting the moral law as the divine law is made to the worshipping world-system. The learning human experience rests on extraction of the nature of conscious oneness that permanently instills the entities and relations intra- and inter-world-systems. This embedded worshipping is referred to as *tasbih* in the *Qur’an*. *Tasbih* therefore means consciousness of unity of knowledge in the entities and relations of world-systems (= “everything”).<sup>3</sup>
- (iii) The discursively determined parts of the moral law pertaining to the issues and problems under investigation give rise to the functional ontological structuring of the objects of investigation in the light of the foundational precept of unity of knowledge (moral law) and its constructive delineation of the induced and knowledge-induced artifacts and relations of the objects of study. This kind of study takes the form of determining the rules, instruments, and circular causation relations of the functional forms that together determine the functional ontology as the model of investigation and reconstruction by the principle of pervasive complementarities between all the good

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<sup>1</sup> *Qur’an* (112:1–2): Say: He is *Allah*, the One and Only; *Allah*, the Eternal, absolute.

<sup>2</sup> *Qur’an* (42:53): The Way of *Allah*, to Whom belongs whatever is in the heavens and whatever is on earth. Behold (how) all affairs tend toward *Allah!*

<sup>3</sup> *Qur’an* (49:24): “Whatever is in the heavens and earth, does declare His praises and Glory: and He is the exalted in Might, the Wise.”

things of life. Pervasive complementarities and participation as the sure signs of invoking conscious oneness is a constant reminder of the *Qur'an*, *Sunnah*, and *Tawhid* to the reflective mind.<sup>4</sup>

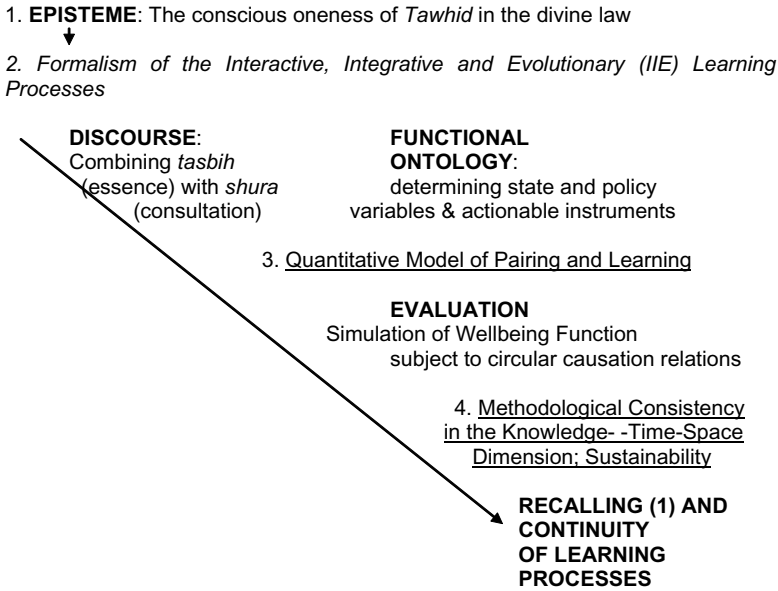
- (iv) The stages (i)–(ii) are repeated from the level of abstraction to the functional ontological delineation of the model of unity of the knowledge-induced entities in respect of diverse issues and problems of world-systems. The passage from the conceptual level to functional ontological description forms the evidential structure of the phenomenological model of unity of knowledge and its knowledge-induced description of the world-system. At this stage the analytical form of the model, mathematical or otherwise in type, leads to the ethical evaluation of the well-being function in the variables representing various elements of the *maqasid as-shari'ah* pertaining to the issues and problems under investigation. The well-being function is the ordinal objective criterion for valuation of the degree of unity of knowledge attained in the world-systems because of the continuously learning nature of the endogenously knowledge-induced artifacts of the world-systems in the good things of life, the social well-being function is simulated in respect of the underlying system of circular causation relations between the state and policy-variables, instruments and dynamic preferences of the agents according to the *maqasid as-shari'ah*.
- (v) The process-oriented simulation by learning on well-being in regenerating fresh levels of knowledge-flows causes one phase of well-being evaluation to lead to fresh rounds of similar learning processes. At these subsequent processes, fresh levels of knowledge-flows are generated in reference once again to the epistemic foundation of divine unity of knowledge ( $\Omega, S$ ). Such regeneration of knowledge-flows and its endogenous induction of the world-system and postevaluation of well-being indexes proceed continuously and pervasively. The end result is increasingly heightened reformation of given states of the world-systems into complementary and participatory forms. Such a transformation of the world-systems is derived from the precepts of the paired universe and re-origination in the *Qur'an*.<sup>5</sup> These are abiding precepts of worldly learning processes and of the great event of the Hereafter when the dead will be raised for the Final Judgment before the sight of *Allah* for meting out the justly due rewards and punishment for acts of truth and falsehood, respectively, as enacted by individuals in the life.

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<sup>4</sup> *Qur'an* (36:36): Glory to *Allah*, Who created in pairs all things that the earth produces, as well as their own (human) kind and (other) things of which they have no knowledge.

<sup>5</sup> *Qur'an* (30:11): It is *Allah* Who begins (the process of) creation; then repeats it; then shall ye be brought back to Him.

**Figure 6.1. Tawhidi Chain Relation: morality, endogenous ethics and world-system in continuity of learning over knowledge–time–space dimension**



**The mathematical structure of simulation of wellbeing function subject to circular causation relations**

The above characteristics and stages occur pervasively and continuously across the entire endogenous learning experience. Ethical experience is derived from the moral law as the episteme of conscious oneness in the resulting methodology that forms the phenomenological model of unity of knowledge. Briefly expressed, the parts of the phenomenological model comprise the following chain, which we refer to as the *Tawhidi* String Relation (TSR) (Figure 6.1).

**6.2. The mathematical structure of simulation of well-being function subject to circular causation relations**

**6.2.1. Evaluation in process 1**

Social Wellbeing Function :  $W(\theta) = W(\mathbf{x}(\theta))$   
 $\mathbf{x}(\theta)$  is the  $\theta$ -knowledge-induced vector (6.1)

Circular Causation Relations :  $x_i = f_i(\mathbf{x}')$  (6.2)



Each variable is a function of  $\theta$ -variable as weights estimated against the values of  $\mathbf{x}(\theta)$ -variables.  $\mathbf{x}'$  is  $\mathbf{x}(\theta)$  excluding  $x_i; i = 1, 2, \dots, n$

$$\text{Knowledge estimation as weights : } \theta = g(\mathbf{x}) \tag{6.3}$$

Note that the estimated  $\theta$ -function and  $W(\theta)$  are monotonic transformations of each other. Therefore, it is sufficient to estimate  $\theta = g(\mathbf{x})$  as the well-being index in any given numbered process. Empirical estimation and simulation of the circular causation relations are done in the empirical part of this work.

**6.2.2. Correction of estimated circular causation equations and the well-being index**

The system comprising (6.2) and (6.3) is corrected for coefficients after examining inter-variable complementarities for the degree of unity of systemic knowledge attained: These choices are made as ordained by *maqasid as-shari'ah* at the Discourse Level. This involves resetting the coefficients of the first-round estimated equations. This empirical step is a combined result of normative perspectives of participatory or complementary transformation and the discursive medium to choose new coefficient values in the circular causation relations. Let the resulting new simulated estimates of the variables be denoted by,

$$(\theta^i, \mathbf{x}^i(\theta)), i = 1, 2, \dots, n$$

Thus a learning process is equivalent to a simulation. On the other hand, if each process represent time (“ $m$ ” below), then there are as many different estimations of  $(\theta_{ij}, \mathbf{x}_{ij})$  followed by their respective  $n$ -number of simulations,  $j = 1, 2, \dots, m$

Distribution of estimated and simulated tuples by processes and time:

Processes	$P_1$	$P_2$	$P_3$	...	$P_n$
			<i>Tuples</i>		
Simulated values	$(\theta^1, \mathbf{x}^1(\theta))$	$(\theta^2, \mathbf{x}^2(\theta))$	$(\theta^3, \mathbf{x}^3(\theta))$	...	$(\theta^n, \mathbf{x}^n(\theta))$
Estimated	$(\theta_1, \mathbf{x}_1)$	$(\theta_2, \mathbf{x}_2)$	$(\theta_3, \mathbf{x}_3)$	...	$(\theta_n, \mathbf{x}_n)$
Simulated	$(\theta_{11}, \mathbf{x}_{11})$	$(\theta_{21}, \mathbf{x}_{21})$	$(\theta_{31}, \mathbf{x}_{31})$	...	$(\theta_{n1}, \mathbf{x}_{n1})$
	$(\theta_{12}, \mathbf{x}_{12})$	$(\theta_{22}, \mathbf{x}_{22})$	$(\theta_{32}, \mathbf{x}_{32})$	...	$(\theta_{n2}, \mathbf{x}_{n2})$
	$(\theta_{1m}, \mathbf{x}_{1m})$	$(\theta_{2m}, \mathbf{x}_{2m})$	$(\theta_{3m}, \mathbf{x}_{3m})$	...	$(\theta_{nm}, \mathbf{x}_{nm})$

Comparisons can now be carried out between the different estimated and simulated values. Such an estimated and simulation method is done in Part II of this work. The results show the empirical nature of endogenous ethics and moral impact on it in respect of real-world problems due to the interrelationships of the  $\mathbf{x}$ -variables with  $\theta$ -induction, and thereby performing the estimation of the well-being function.

### 6.3. The significance of estimation and simulation in the ethico-economic system

The estimated and revised (simulated) coefficients of the circular causation system of relations signify the elasticity of the dependent variables in terms of the independent variables with the corresponding coefficients. On the basis of choices of the good things of life as ordained by the *shari'ah* the choices must all be complementary to each other. However, this is not always true in the real world due to economic and social imperfections. When differentiations between the variables arise, as often shown by the negative elasticity coefficients between the *shari'ah*-recommended goods, the estimated coefficients are revised to make them positive or near positive with better values, as deemed appropriate for the normative reconstructive change. But the discursive participation in such determination of the coefficients is necessary, because the resetting of normatively desired coefficient values involves underlying cost of implementing the change as deemed necessary by the discursive body in the light of market realities and the directions of *maqasid as-shari'ah*.

Thus, in the case of an “ $\alpha$ ” percent increase in the dependent output per unit of the independent output (estimated and revised coefficient), the change in the total cost function will depend on the ratio of the dependent and independent variables and the revised coefficient in the circular causation equations.<sup>6</sup> Conversely, the simulated coefficients depend upon the cost functions, changes in which in turn are affected by policy and institutional structures that generate a participatory socioeconomic system. The assignment of learning parameters, which are the  $\theta$ -variables over processes of IIE in policy, institutional and state-variables also depend on the underlying discursive experience of the socioeconomic system. Similar

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<sup>6</sup> Consider a general multiplicative form,  $y = A \prod x_i^{\alpha_i}$ . The log-linear transformation is  $\log y = \log A + \sum \alpha_i \log x_i$ . Consequently,  $\alpha_i = (d \log y / d \log x_i) =$  elasticity coefficient of  $y$  with respect to  $x_i$ ,  $i = 1, 2, 3, \dots, n$ . For pervasive complementarities to exist or be formed normatively through learning ( $\theta$ ),  $d\alpha_i/d\theta > 0$  and be sustained as a stable estimated parameter. It can be shown that alternatively, if a linear model was used, the normative improvement in the positive elasticity coefficients and the complementary relations between variables cannot always be attained. Consequently, the stable learning property of the coefficients with respect to the  $\theta$ -value cannot be attained in such a case. Note that in complex forms of learning models the  $\alpha_i$ -parameters are functions of  $\theta$ -values. Without showing the detailed steps here, the stability equation of the elasticity coefficient, say  $\alpha$ , is  $\{(x/y)(da_i/d\theta) + a_i(x/y)[(dx_i/x_i)/d\theta - (dy/y)/d\theta]\}$ , whose signs cannot be exactly determined even in the normative case. Here  $x$  denotes any of the  $x_i$ -variables. Besides, in this expression it is far more difficult to control  $(x/y)$  by appropriately assigned normative values than it is for assigning new values for the elasticity coefficients of the  $y$ -variable in respect of the  $x_i$ -variables to establish transformation into pervasive complementarities between the good things of life.

dynamics can be extended in the case of the scientific discourse concerning unity of knowledge and the world-system in the generalized case and its particulars to specified problems.

The Spatial Domain Analysis (SDA) of Geographical Information System (GIS) is a powerful method for selecting simulated coefficients from a randomized field of possibilities concerning participation in unity of knowledge between the variables representing the good things of life. These comply most importantly with the *maqasid as-shari'ah* (divine purpose of the *shari'ah*). We have throughout pointed out that the *maqasid as-shari'ah* essentially arises from and sustains the *Tawhidi* unity of knowledge across and within world-systems in every issue and problem under investigation. The *maqasid as-shari'ah* as the essence of Islamic law forms the overarching guidance and control over the IIE-methodology of learning processes shown in Figure 5.1 and expression (5.1). Hence the computerized method of SDA applied to the normative selection of coefficients out of the random field of simulated coefficients invokes the underlying episteme of unity of knowledge in system framework. This is now expressed by means of linkages and complementarities between the variables denoting the *maqasid as-shari'ah* in the problem under study. A further study in this regard is carried out by Choudhury and Hossain (2010).

The SDA method used in selecting from normatively simulated field of coefficients to attain degrees of complementarities between the requisite variables is elaborated in applied part of this work. The important observation now is to note the substantive implications that this kind of quantitative estimation of the functional ontological model imparts on the social well-being function. The focus here is on simulating the social well-being function, or equivalently, the knowledge-function ( $\theta$ -equation) in the circular causation relational system in terms of degrees of complementarities gained between the variables, in the light of unity of knowledge and the discursive guidance of the *maqasid as-shari'ah*. The *Tawhidi* episteme underlying *maqasid as-shari'ah* is the episteme of unity of knowledge in the *Qur'an* and the *Sunnah*. This forms the super-cardinal field of knowledge concerning conscious oneness. Upon it and by it the details of the world-systems are constructed and creatively evolved through the IIE-learning processes.

#### **6.4. The precept of *maqasid as-shari'ah* versus *shari'ah-compliance*: a generalized purview**

The functions of *maqasid as-shari'ah* and *shari'ah-compliance* are not identical. The *maqasid as-shari'ah* is necessarily and sufficiently in agreement with the idea of *shari'ah-compliance*; but “*shari'ah-compliance*” as practiced today may not necessarily invoke *maqasid as-shari'ah*. It has been pointed out loosely that the *maqasid as-shari'ah* includes the goals of

sustaining Islamic belief, self which comprehends progeny, needs which includes property and security, and intellect which includes knowledge, and sustainability of the Islamic community (Shatibi, 1884). There is a close correspondence between Shatibi's delineation of the *maqasid as-shari'ah* and those explained by Imam Fakhruddin Razi and Imam Ghazali. This topic was covered earlier while discussing the concept of moral self-actualization in Islam.

The comprehensive way of delineating moral development of society in terms of the *shari'ah*-compliant basket of essentials comprises (necessaries (*durruriyath*), comforts (*hajiyyath*), and refinements (*tahsaniyyath*)) of Shatibi. Likewise, according to Imam Fakhruddin Razi the moral development regime comprises *ubudiyyah* (life-sustaining by means of worship). To Imam Ghazali it meant sustaining knowledge and the world-system in the light of inner surrender to the conscious oneness (*kashf*). Shah Waliullah (undated) joined in the projects of explaining the Islamic worldview as a comprehensive multidisciplinary and multidimensional quest for an integrated approach to real experiences. This experience extended across economics, society, politics, philosophy, science, and belief (*ibadah*). He focused his project on the *Qur'an* and the *Sunnah* to explain the need for the multidimensional approach in the comprehensive development future of Muslims. But he went beyond to universalize the *Qur'anic* message by launching the translation of the *Qur'an* into other languages. In so doing, Shah Waliullah introduced a dialectical methodology to the study of worldly phenomenology in the light of Islamic epistemology. Such was also the approach much later on envisioned by Malek Ben Nabi (1983) in his study of *Qur'anic* phenomenology as the universal way of understanding science and its objective reasoning that must necessarily include moral depths of logical analysis.

Thus, these great Islamic thinkers of Islam blazed the way for the revival of Islam in the light of the *Qur'an*, *Sunnah*, and the discursive world-systems during the dark ages of Muslim decadence in every field. They shouldered the project of Islamic revival against the western intellectual darkness. About the latter state of scientific inquiry, Husserl (1965) later on pointed out the moral decrepitude of Western science. The focus on the overarching picture rather than the piecemeal study of issues and problems of science, society, economy, and today's finance and banking, comprises the generalized system methodology. Within such a generalized approach all particular problems were investigated.

Development of sustainable moral self, society, and the Islamic world-system was cast in the generalized framework of explaining the interrelationships that exist between these areas of experience. The *maqasid as-shari'ah* was thus seen as the comprehensive understanding of the Islamic law in addressing the time-bound problems of human societies. Even science as human pursuit was not missed out in this comprehensive structure of socio-scientific development prescription for the Muslim world

(*ummah*). We have seen in this regard, that dynamic basic needs of life were at the center of all development prescriptions of the great learned *Qur'anic* scholars, the *mujtahids*, for the rise of the conscious world-nation of Islam (*ummah*). In such a precept of the *maqasid as-shari'ah* only, it is possible to realize the essential impact of the Islamic law in life's overarching and integrative functions. The *shari'ah*-compliance concept makes objective sense only in such an understanding and application of *maqasid as-shari'ah*.

The idea of “*shari'ah*-compliance” is not necessarily that of *maqasid as-shari'ah*. Most often it is found that *shari'ah*-compliance as an idea has fell victim to an overly legal-religious interpretation of the *shari'ah* to specifics taken separately from the overarching general system worldview of Islam. Besides, the tenets of Islamic law became increasingly surrendered to such piecemeal interpretations and applications. The result was a differentiated interpretation (*fiqh*) of the Islamic law by different Islamic schools. Some of these interpretations have lost legitimacy across changes of events and their complexity in time. Above all, in none of these piecemeal approaches to the *shari'ah*-compliance concept is the epistemic idea of unity of knowledge and the world-system, the participatory worldview of this conscious oneness and the human future, in place. These greatest precepts are merely expressed in utterance without delivering the functional ontological understanding of the being and becoming of a dynamic sustainable moral development future. Dr. Mahathir Mohammad (2000) laments over such sorry state of the Muslim world today as it has been with the courts of legal traditionalists.

Asad (op. cit.) writes on this despicable condition of the *ummah* in the context of the *fiqi*-basis of the past that has gone out of relevance in the changing world of new challenges:

This is how it has come about that for centuries past the majority of Muslims have been practicing *taqlid* (literally, “garlanding”, i.e. investing with authority): in the words of the classical philologists, this means a person's following another in what he says or does, firmly believing him to be right therein, without consideration of proof or evidence .... It goes without saying that this practice is an antithesis to a Muslim's duty of thinking and reflecting which is so unambiguously stressed in the *Qur'an*.

The history of *fiqi* interpretation of the Islamic law has been torn between extremes. In the first place, the rationalists (*mantiq*) totally ignored the *shari'ah* foundation of the Islamic worldview and took instead to Greek philosophy toward understanding the *Qur'an*. On this matter Fakhry (2004, p. 106–109) explains the open revolt of heretical movements against Islamic religious foundation. Such heretical movements got the support of the ruling Abbasid dynasty of the time. The political animosity between the Persians and Arabs was instrumental in this kind of religious schism. The Persians denigrated the Arab supremacy on matters of culture and religion at the time, and thereby took to rationalist tendency in the understanding of Islam.

This kind of reaction among the *Shia* school was rampant in the works of the Mu'tazilah, and the peripatetic philosophers. Ibn Sina like Farabi and Razi (Averroes) was an arch exponent of such a rationalist philosophical expression. He did not approach the issues of Islamic law from the viewpoint of the *shari'ah*. Consequently, Ibn Sina had to give a nonexistential meaning to the original conscious oneness of *Allah* rather than embrace the *Qur'anic* command on the absolute Purity as the basis of *Allah's* oneness.<sup>7</sup>

In Ibn Khaldun's philosophy of history (Mahdi, 1964) we find his immaculate praise of the *shari'ah* as the ideal law. But at the same time one condescends to Ibn Khaldun's utter failure in explaining the *shari'ah* as the comprehensive law of the great overarching system that the *Qur'an* builds for humankind. In the end, the *shari'ah* as a systemic worldview of divine code of life and the worldly pursuits did not flourish in the writings of Ibn Khaldun. Ibn Khaldun was devoid of the holistic and multidimensional intellection of history that is found in Shah Waliullah.

In modern times, the reawakening of movements for the *shari'ah* is by and large a political and commercial one. No intellectual emphasis is placed, and Islamic scholars have failed to realize the great overarching meaning of the *shari'ah* as the systemic holism of human experience, extending beyond society into science as well. We have dwelled on this issue earlier. Here we can point out the futility of the idea of *shari'ah-compliance* mistaken for *maqasid as-shari'ah*. This remiss has darkened the intellectual acumen on the Muslim frontage of Islamic economics and finance. This demise that continues to ferment the Islamic intellectual growth is once again the *fiqi*-basis of interpretation and understanding of the *shari'ah*. The emphasis has been on the particulars of the *shari'ah* in respect of specifics, rather than in deriving the particular from the general-system worldview of conscious oneness. This kind of intellection ought to be premised on the foundational episteme of Islamic law. Yet the possibility of such a pursuit has drifted to the backbench, with only a detached mention of the *maqasid as-shari'ah*, rather than the instilling of its functional ontology in the scheme of "everything."

### **6.5. The precept of *maqasid as-shari'ah* versus the notion of *shari'ah-compliance* in Islamic worldly matters in contemporary times**

Taqi Usmani's book (2004) presents the prevalent nature of detachedness of the *shari'ah-compliance* concept from the *Qur'anic* holistic overarching

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<sup>7</sup> *Qur'an* (112): "Say: He is *Allah*, the One and Unique; *Allah*, who is in need of none and of Whom all are in need; He neither begot any nor was He begotten, and none is comparable to Him."

worldview of *maqasid as-shari'ah*. One can note a number of disturbing historical developments and their present days' consequences on the *shari'ah* implications in Islamic economics and finance.

Firstly, the field of the *shari'ah* has been restricted to affairs of economics, finance, commerce, and society. The greater implications of the *shari'ah* in science and the socio-scientific world are nowhere even referred to. Consequently, the common understanding of the *shari'ah* is not ontologically and analytically grounded on the *Tawhidi* episteme of conscious oneness. A segmented understanding of the *shari'ah* is erected by such a dichotomy between *Sumat Allah*, the divine law that is impelled to govern the physical universe; and the *shari'ah* that is made to govern worldly matters (*muamalat*).

Reference to *Tawhid* as the cardinal axiom of Islamic law being detached, the functional ontology of the *Tawhidi* worldview in action in relation to the socio-scientific world-system, remains benign. The inner dialectical essence of integrated and complementary development sustainability across the overarching multidimensional domain of intellectual inquiry and positive action as conceived by the great *mujtahids* has no discernible trace in the prevalent meaning of the Islamic law.

Upon this contorted knowledge of the *shari'ah*, the notion of *shari'ah*-compliance takes its roots. The result is consequential methodological independence between differentiated compartments of the intellectual disciplines. Such a differentiated view has led to the annoyance of de-harmonization between the *maqasid as-shari'ah* and *shari'ah*-compliance concepts among differing schools of theology, namely of the pitiful *mazhabs*. *Mazhab* has become a means of both dividing Muslims and make the world bereft of intellection in the greatness of *Tawhid* as the episteme of the *maqasid as-shari'ah* to the entire world. In the case of legal rules governing the contract and financing of the principal Islamic financing instruments there remain wide differences and no substantial advance in intellection and application.

Examples of such divide in the *fiqi* history are rampant. On the matter of equity participation (*musharakah*) Imam Malik's view is to allow for joint-partnership by contribution in kind, not necessarily in financial share of total capital. Imam Abu Hanifa and Imam Ahmad do not permit participation in kind; all contribution to the joint venture must be in financial form. The basis for this kind of disagreement is the nature of commodity that may be treated as shareholding. These latter days jurists' claims require examination. They argue on the nature of the commodity in exchange in order to establish the profit-sharing ratio. Imam Shafi on the other hand divides the nature of commodities into perishable and non-perishable ones. Nonperishable commodities may be accepted in *musharakah*; perishable commodities are unacceptable. This formula financing is unacceptable to Imam Abu Hanifa and Imam Ahmad.

These kinds of problems and *fiqi* disagreements also raise complex problems of mixing up *musharakah* and *mudarabah* (profit-sharing) in

project financing, shareholding, and distribution of shares of profits to investors (*rabb al-mal*) and service providers (*mudarib*). Here, while the *rabb al-mal* is solely the owner, whereas the *mudarib* shares profits with the *rabb al-mal*, yet in the occasion of business losses only the *rabb al-mal* bears the losses. A number of problems arise in such kinds of legalistic approaches to financing by combining different kinds of productive items in project financing and profit-sharing, and in combining *mudarabah* and *musharakah* modes of financing into one consolidated fund.

First, take the case of allocation of time in an enterprise by one who has no capital to contribute. Time as a productive resource in the form of congealed labor and service creates a product that remains undifferentiated in terms of contributions made by capital-owners and service-providers, including labor. What is the share of the latter in the profit-sharing and wage-bill? Is there a relationship between these diverse modes of payments?

Since time as contribution of effort of labor is a productive input, it (labor and service-providers) is entitled to a share of wages and profits. Therefore, different kinds of inputs are combined indistinguishably in the distribution of payments. This argument annuls the concern made by the above-mentioned jurists (*fuqaha*), who ask for a strict determination of the nature of inputs (commodities) and the determination of exact profit-sharing ratios upon such strict determination.

However, the distribution of payments to productive factors is possible on fair grounds, contrary to the *fiqhi* provided above. The effort that goes with the input of time is valued firstly according to the total value of the firm at any point in time being equal to a share of capital plus the share of payments to all who supply effort including the owners. These latter payments are determined by the process of discourse on the basis of market reality. The payments are also added to the dividend payments in the same equation. The dividend payments are determined by capital-ownership shares and time-effort of different participants. The capitalized value of the firm at a given point of time is then equated to the sum of dividend shares for different participants and the wage payments to all, including workers and capital-owners.<sup>8</sup>

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<sup>8</sup> Value of the firm at a given point of time on the knowledge of actual cash flows and the discourse factor explained by  $\theta$ -value (implied) at that time is,  $V_t = \sum_t (1+r)^{T-t} y_t$ . Here,  $r$  denotes the rate of return on investment and assets of the firm.  $y_t$  denotes cash flow at time  $t$ ;  $t = 1, 2, \dots, T$ .

Total payments =  $D_t + W_t$ ;  $D_t$  denotes dividends,  $W_t$  denotes wages, both at time  $t$ .

Furthermore,  $D_t = D_{t1} + D_{t2}$ ;  $D_{t1}$ : dividends to capital-owners;  $D_{t2}$ : dividends to others in the firm at time  $t$ .  $D_{t1} = [K_1/(K_1 + L_{t1} + L_{t2})] \times V_t$ .  $D_{t2} = [L_{t2}/(K_1 + L_{t1} + L_{t2})] \times V_t$ . Here,  $K_1$  denotes capital investment;  $L_{t1}$  denotes input of labor by owners;  $L_{t2}$  denotes input of labor by workers and service-providers. These are objectively measured variables and can be



*Fiqi* legists have completely ignored the valuation of time in the distribution of the total value of the firm to all partners irrespective of the nature of their contributions. Consequently, there has been less than warm reception to sustain the Islamic flavor in the *mudarabah* and *musharakah* modes of financing. On the other hand paradoxically, controversial financing instruments and profit-sharing instruments in the name of *shari'ah*-compliance have come into practice. Islamic financial markets could not establish themselves independently of the conventional ones. As a result, much of the conventional financial objective criteria, such as profit-maximization, present-valuation of assets and shares; and reliance on LIBOR to calculate the rate of return on dividends, have marred the Islamic relevance of *shari'ah*-compliant financing idea.

The greater goal of *maqasid as-shari'ah* in the light of sustainability in the *ummah* has failed. In this failed portfolio there is ambivalence toward dynamic life-sustaining regimes of development, poverty alleviation, global networking of Islamic markets and institutions, and a unified determination of structures of *ummah* transformation, relevant policies, institutions, instruments, and participatory development within an intellectual, and fresh and learning vision of change.

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subjected to the participatory discourse mechanism in the firm. One can refer to examples of such social contracts in ESOP and USOP (Ellerman, 1991) and Wisman (1991).

Likewise,  $W_t = W_{t1} + W_{t2}$ ;  $W_{t1}$  denotes nondividend payment to capital-owners,  $W_{t1}$  = market valuation of the given type of service rendered. Likewise is the case with  $W_{t2}$ .

Thus the total shares of payments are,

- (1) payments to capital-owners =  $D_{t1} + W_{t1} = [K_1 / (K_1 + L_{t1} + L_{t2})] \times V_t + W_{t1}$ ;
- (2) payments to workers and service-providers

$$= D_{t2} + W_{t2}$$

$$= D_{t2} = [L_{t1} / (K_1 + L_{t1} + L_{t2})] \times V_t + W_{t2}$$

All the variables shown are objective to the market determination and discourse by the hidden  $\theta$ -variable that determines all the variables. Thus issues of goodwill, commission, gift from owners to others in the firm, variable *mudarabah*-*musharakah*, business contracts, and asset valuation by swapping financing and shares between *mudarabah* and *musharakah* in variable contracts etc. can be included.

The *fuqahas* have left the issue of distribution of profits to sheer mutual agreement at the outset of a business partnership. This is a haphazard formula and can be subjected to immense deprivation of workers at the advantage of capitalists. That was the Marxist argument of surplus value taken by capitalists in their valuation of payments to labor. The above kind of valuation methods were pointed out by the author sometime ago (Choudhury, 1989).

## 6.6. The problem of shari'ah-compliance in secondary financing instrument selection and the alternative

Partly due to the failed performance of and trust in the workability of *mudarabah* and *musharakah*, Islamic financing institutions have turned to controversial secondary instruments. The plea is made that these secondary financing instruments comprise asset-backed financing modes, and are therefore safe from interest-rates (*riba*). *Riba* is not permitted in Islam in any shape and form. Such an argument is deceptive. A trend toward harmonization of the *shari'ah* instruments to development financing and uplift of the *ummah* in economic, financial, and intellectual terms does not exist.

## 6.7. Investment allocations according to financing instruments in Malaysia

### 6.7.1. Islamic banks

Empirical findings on the sectoral irrelevance of Islamic development transformation are supported by the statistics on financing instruments.<sup>9</sup> *Mudarabah* (profit-sharing) and *musharakah* (equity financing) as the

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<sup>9</sup> The following is the summary of the estimated regression equations on Islamic financing in Malaysia (Choudhury, 2008b). They show a clear trend away from the *mudarabah* and *musharakah* modes of financing into secondary instruments.

#### *Islamic Banks in Malaysia*

##### *Mudarabah M<sub>1</sub>*

$$1. \ln(M_1/\text{total}) = 70.4 - 0.00188 t$$

$$t\text{-stats} \quad (3.51) \quad (-3.61)$$

$$R^2 = 0.4260; \text{Durbin-Watson} = 1.4404$$

##### *Musharakah M<sub>2</sub>*

$$2. \ln(M_2/\text{total}) = 41.6 - 0.00110 t$$

$$t\text{-stats} \quad (1.90) \quad (-1.93)$$

$$R^2 = 0.5149; \text{Durbin-Watson} = 1.45964$$

##### *Murabaha M<sub>3</sub>*

$$3. \ln(M_3/\text{total}) = 32.8 - 0.000782 t$$

$$t\text{-stats} \quad (5.53) \quad (-5.06)$$

$$R^2 = 0.8370; \text{Durbin-Watson} = 1.46165$$

##### *Secondary (Other)*

$$4. \ln(\text{other (secondary)}/\text{total}) = -2.09 + 0.000169 t$$

$$t\text{-stats} \quad (-3.19) \quad (9.89)$$

$$R^2 = 0.9510; \text{Durbin-Watson} = 2.48936$$

principal joint venture financing instruments and drivers of Islamic financing have received marginal attention in favor of *murabaha* (cost-plus pricing) and the secondary financing instruments. *Murabaha* and the secondary financing instruments are overly emphasized. Yet the secondary instruments are questionable in Islamic perspective. Their financial evaluation depends centrally on the concept of time-value of money (Rosly, 2005), which is a *riba* (interest)-based method of asset valuation.

Present-valuation of deferred payments, as in the case of rents, lease, and futures contracts are subjected to ad hoc assumptions of risk and return, pricing, and charges that do not reflect the true state of the assets in exchange at future time periods. If the charges fall unduly on the buyer of mega-projects, then a surplus goes into the hands of the seller at the detriment of the buyer. If it is the converse, then a shortfall of potential profitability occurs. Both of these cause price distortions. When price fluctuation is rapid, then such distortions increase manifolds and vice-versa. Thereby, price stability is always in question as a result of such pricing methods of futures.

There are other factors of concern as well. In continuation of the above argument, the linkages between money, finance, and the real economy are ruptured when there is mismatch between the quantity of money and the value of real assets as a result of over or under valuation. On a cumulative basis of such mismatches, the expected quantity of money being either more or less than the actual quantity needed for the economy at a future time period, causes either inflationary pressure or deficiency of demand. Both of these conditions are signs of inefficient mobilization and allocation of resources, and thereby, a result of deepening conflict and competition in socioeconomic development ensues.

The given Islamic banking statistics show that similar secondary financing instruments are emulated by commercial banks as well. They are therefore subjected to all the ramifications of commercial interest, not having any ethical and social meaning in the profit-making exercise.

One of the consequences of the mainstream commercial way of the inherent project-valuation with deferred payments and financing schemes is the use of risk and return methodology. This approach to project valuation of futures brings into Islamic valuation methods all the ramifications of expected utility maximization, the methodological implications of which are untenable in the case of Islamic resource mobilization. The secondary financing instruments, therefore, cannot have legitimate influence on Islamic transformation of the socioeconomic system (Choudhury & Hoque, 2004).

Contrary to the above-mentioned legitimizing of questionable secondary instruments and their feigned *shari'ah*-compliant treatment, the Islamic transformation dynamics are explained by evolutionary circular causation interrelationships between money, finance, and the real economy in the good things of life. The sectoral circular causations are sustained by

sectoral linkages as the systemic meaning of unity of learning systems in the light of the *Tawhidi* epistemology. This episteme is applied to the specific problem of systemic unity of knowledge, and thereby, to realize symbiosis between the socioeconomic variables overarching money, finance, and the real economy.

Data obtained from Bank Negara Malaysia amply testify to our observations made here. Both Islamic banks and commercial banks have increased their investment allocations into secondary financing instruments from 74.45% of total financing (Islamic banks) and 75.80% of total financing (commercial banks) in June 2003 to 90.26 and 95.29%, respectively. For the same time period, the *murabaha* financing by Islamic banks decreased from 22.80 to 9.22%; whereas for commercial banks such financing increased from about 2 to 4.71%.

These findings amply testify to the fact that Islamic banks in Malaysia are merely competing with commercial banks to gain market shares by using secondary financing instruments that are questionable as *shari'ah*-compliant financing instruments. On the contrary, the especial Islamic financing instruments of *mudarabah*, *musharakah*, and to an extent *murabaha*, and the hybrid between these, which can offer prospects for short-, medium-, and long-term sustainable development and transformation into an Islamicized socioeconomic unified system of money, finance, and developmental relations are being left out of focus.

A wide gap remains between the Islamic methodological worldview and certain misconstrued ideas, methods, and directives to establish Islamic outlets of economics and finance. These observations flowing out of this chapter, including the statistical results as explained, do not support the kind of momentum expected of the Malaysian program of Islamicization in recent times. Rather, this chapter has pointed out that the misconstruing of the Islamic worldview and its application to Islamicization must be changed for what is truly Islamic. This authentic worldview is premised on the epistemology of *Tawhid* as it exists in the realm of belief and is implicated into positive socioeconomic action by logical formalism flowing out of the *Qur'an* and the *Sunnah*.

### **6.8. The problem of LIBOR in islamic financial evaluation**

Usmani's (op. cit., pp. 118–120) defense of the use of LIBOR reflects the apologetic weakness of the intellection process in Islamic economics and finance under the umbrella of the *fiqi* tradition. He argues that although LIBOR is an interest rate, against which Islamic financing companies tally their rate of return, LIBOR is temporarily acceptable as a benchmark to set markup and compare profitability against the LIBOR.

Usmani writes (p. 119), "If a *mudarabah* transaction fulfils all the conditions ..., merely using the interest rate as a benchmark for

determining the profit of *murabaha* does not render the transaction as invalid, *haram* or prohibited, because the deal itself does not contain interest rate. The rate of interest has been used only as an indicator or as a benchmark.” This is a deplorable apologetic statement, in the same way as debt is being legitimated on *fiqi* grounds up to one-third of the asset value of an enterprise.

The argument rejecting the apologetic approach is based on the presently available ways of evaluating the mark-up and the profit-margin rate. The actual available statistics arise from real markets at any given point of time. There ought to exist participatory discourse to determine such rates.

Take first the case of replacing LIBOR by such a market-friendly rate. If the mark-up is to be truly an Islamic financing instrument in *murabaha* for instance, it has to be related to the actual performance of real assets that serve the *maqasid as-shari'ah*. Such an alternative Islamic rate can come about by the endogenous interrelationship between real output, investment, and an extension of economic and risk diversifications by participatory ventures.<sup>10</sup> If needed for ready reference in studying the future prospects of a project, such a rate can be constructed on the basis of selected portfolio of securities backed up by similar project portfolio (Choudhury, 1989). For estimating actual profitability, the rate is computed by real data.

Besides, while a pre-fixation of the profit-rate is contrary to the interest-free mode of Islamic financing, even in the case of projected valuation of profitability by expected rates, there exists no legitimacy for the methods used to determine such expected rates to base financing futures upon them. Only the present is sacrosanct; the future is unknown, despite the most sophisticated methods that may be claimed for forecasting. Note that the *Qur'an* has not given authority to mankind to fathom the paragon of the

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<sup>10</sup> All variables are  $\theta$ -induced to allow for market-institutional discourse in the light of the epistemic foundation and the *maqasid as-shari'ah*.

Total participatory output ( $Q$ ) generated to diversify production and risk across  $i$ -number of products ( $Q_i$ ) is  $Q = \Pi_i Q_i^{a_i}$ ,  $a_i$  denote elasticity coefficients of  $Q$  to  $Q_i$ ,  $i = 1, 2, \dots, m$ .

Similarly, let  $I$  denote the total investment in terms of the  $i$ th-numbered project investments,  $I = \Pi_i I_i^{b_i}$ . The rate of return ( $r$ ) appearing as productivity of investment is given by,  $r = Q/I = \Pi_i Q_i^{a_i} / \Pi_i I_i^{b_i} = \Pi_i (Q_i^{a_i} / I_i^{b_i}) =$  diversified product of output ( $Q_i$ ) and risk ( $I_i$ ) according to the discursive determination of the elasticity coefficients as shown ( $a_i, b_i$ ). A probabilistic determination of such a rate can also be formalized.

Determination of expected rates out of a portfolio of securities: Let  $V_t = \sum_j \Sigma_i (1+r_j)^t y_{jt}$ . With a targeted  $V_t = V^*$ , the following equation can be solved for  $r_{jt}$ :  $\sum_j \Sigma_i (1+r_j)^t y_{jt} = V^*$ , with projected  $y_{jt}$  using a approximate numerical method.

hidden future creation in the sight of *Allah* to know the unknown (*ghayb*).<sup>11</sup>

The actually realized rate of return (profit-rate) can be attained by the performance of the project or a similar project that is “nearest” to the occurrence of the event in the state of the economy. A forward overlapping generation model of valuation can be used. Such an overlapping generation model in the Islamic case replaces the present-valuation model, which is confounded by the unacceptable rule of the time-value of money and its representations. Among these instruments are the internal rate of return, the long-term bond rate for the sake of rate-comparison, and the neoclassical idea of intertemporal resource allocation by means of future rates in overlapping generation model (Choudhury, 2009b; Jean, 1970; website link on overlapping generation model). LIBOR shares the nature of such rates that cannot be accommodated as a method of comparative rate fixation in Islamic finance and project evaluation while ignoring the emergence of an Islamic socio-scientific order that will itself define the various categories.

Next consider the problem of quoting expected rates to the potential investor by quoting rates that are generated in similar portfolio of projects and securities. Is this approach, used for wooing investments, legitimate under the moral law, as we have understood it earlier? Expectation involves probability measures that invariably respond to different event-contingencies, time, space, and preference conditions. The result of such divergences then is an inevitable difference in the portfolio mix of assets. It is well known from welfare economics that space and time make difference in the attributes of commodities, even though they may be the same kind of items (Debreu, 1959). In a probabilistic space, the portfolio comprises random assets. Hence each of its items and events of occurrence of these items with probabilistic contingencies is different from another. Consequently, it is impossible to quote rates to invite investments on the basis of announcements of comparative rates on similar projects, though the projects may be of the same type. It is then unfair to make the potential investor form his decisions on the basis of untrue future expectations on the basis of unrealized future contingencies.

Such indicative rates are the result of present-value computations of probabilistic internal rates of return, which form the random time-values of money measuring opportunity cost of alternative investments over time. All such neoclassical criteria for rational choice are equally unacceptable in the Islamic case.

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<sup>11</sup> *Qur'an* (6:57): “Say: ‘For me, I (work) on a clear Sign from my Lord, but you reject Him. What you would see hastened, is not in my power. The Command rests with none but Allah: He declares the Truth, and He is the best of judges.’”

The *Qur'anic* verse on the human impossibility of knowing the unseen (future as *ghayb*) rules over the argument here. The same argument is also ratified by the Prophet's *hadith* that says a fruit cannot be priced before it is borne by the tree; a fish cannot be priced before it is landed in market exchange.

Consequently, the *shari'ah*-compliance idea fails to convey the true meaning of *maqasid as-shari'ah* in all of the above contrary cases. Despite this problem, the questionable issues linked with the idea of *shari'ah*-compliance are being promoted by the present-days' *fuqaha* (*fiqh* scholars) with questionable *fiqi* tradition. The problem of an intellectual blind submission to prevalent mainstream economic and financial reasoning is driving the Muslims along lines of *taqlid*, as it was the case in the history of Muslims. The traditional Muslims remained divided between the rationalists and the epistemologists, and within the ranks of the theologians in their cantankerous *fiqi* field of religious disagreements. This state of *fiqi* problems necessitates its replacement by *ijtihad* through the learning process of the *shura* in concert with human observing of the Signs of *Allah* as unity of divine law in the scheme of "everything" (*tasbih*).

Contrary to providing uncertain rates to the potential investor, factual statistical information can be obtained on the computed rate-of-return at the "nearest" point of evaluation of a project and portfolio. We refer here to the method shown in footnote for computing such rates. Now *shari'ah*-compliance in accordance with *maqasid as-shari'ah* can be accepted to permit a range of contingency-determined rates that can be proposed according to various future economic and financial states. On this issue of admissibility of random selection of possible rates, the medium of polity-market discourse based on the scenario of a participatory economy becomes an effective alternative. Methods of simulating such rates, as mentioned earlier, can be applied for generating the contingency-based rates-of-return with rule-setting in the overlapping generation model of asset valuation. A contingency model of asset valuation, but using the present-valuation method, which is contrary to Islamic legitimacy, was done by Hirschleifer (1970).

### **6.9. Problems of salam and istisna in the fiqh of shari'ah-compliance**

As secondary financing instruments, present value of full payment for deferred delivery of goods (*salam*), and payment for goods that are not produced but are expected to be produced in the future (*istisna*) are highly questionable Islamic financing alternatives, although they have been approved as *shari'ah*-compliant modes of financing. The moral concern on the rule of selling short of providing the products at the spot and at full cost, which is equal to the total price of the goods, is equivalent to the uncertain speculative game played out between the buyers and sellers. Even

in the best case that the commodity is promised to adhere to its perfect quality between the time of establishing the futures contract now and the time of availability of the goods, the high cost of maintaining the preferences of such goods in quality and kind, causes product differentiation.

The fact is that cost is a function of production level and quality maintenance. Conversely, production level (quantity) and quality maintenance are implicit relations of the other variables.<sup>12</sup> Hence there are implicit relations of a circular causation type between cost, output, and quality. Now any deferment of delivery at a full cost-pricing approach entailing high cost to maintain quality, would mean a different statistical result for cost (pricing) in terms of the output and quality variables; and output in terms of cost and quality level; and quality in terms of the cost and output variables in the circular causation relations of pervasive regenerated processes of complementarities and participatoriness between representative entities and variables. One of the proxies for quality-maintenance variable can be the development impact of the goods between now and the future. An example of development impact of quality maintenance in such a case is poverty alleviation by means of immediate provisioning of resources and price stability carried along from point-to-point of the development regime of “needs” contra “wants.” These kinds of issues have been totally ignored in the claim of *shari’ah*-compliance announcements of financing instruments by the existing *fiqi* practice.

The same problem is associated with the *shari’ah*-compliance idea of *istisna*, meaning full financing now for a prospective good that is to be produced in the future. The difference between *istisna* and *salam* is this. The good is known to exist and is in possession in the case of *salam*. In the case of *istisna* the good is nonexistent until such time when it is produced.

With this difference in view the statistical relations for *salam* financing as shown in the footnote are converted into probabilistic forms. Now once again, with the arguments concerning future probability measures, as explained in footnotes earlier, the event-path of probabilistic occurrences of contingencies makes the argument for *istisna* according to the *fiqh* of *shari’ah*-compliance untenable.

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<sup>12</sup> (Full cost-pricing, output, quality, ethical rule) =  $(C, Q, L, \theta)$ . This makes each of  $C = C(\theta)$ ,  $Q = Q(\theta)$ ,  $L = L(\theta)$ . An example of  $\theta$  pertaining to the development regime is poverty alleviation by means of the rule of delivery of needs and price-stability. Such a rule all along the path of development regime according to the moral law causes the following circular causation relations:  $C = f_1(Q, L)[\theta]$ ;  $Q = f_2(C, L)[\theta]$ ;  $L = f_3(C, Q)[\theta]$ ;  $\theta = f_4(C, Q, L)[\theta]$ .  $f_4(\cdot)$  is effectively the social well-being function of the sustainable development regime according to the moral law.



The same arguments can be extended to the issue of unacceptability of *murabaha* as Islamic financing instrument, unless pricing corrections are done for the financial contract at each point of occurrence of stated contingencies. The result then would be a participatory engagement between buyers and sellers on the basis of compensations by contingencies at each point of occurrence of an event along the path of the financial contract.<sup>13</sup> This is not how the contract of *murabaha* is construed by so-called Islamic financing firms in the name of *shari'ah*-compliance simply by virtue of asset-backed financing as the sufficient *shari'ah* condition.

In every one of the above-mentioned cases, secondary financing instruments have been inordinately profitable for the so-called Islamic financial businesses including Islamic banks. The reason behind this is the existence of information asymmetry. Information on profitability and risk management as cost-entailing is much better available to the businesses than to buyers. Consequently, the risk factor in mark-ups and forward pricing formulas can be set in ways to make up the profits. The same information is not available to buyers.

Besides, secondary financing outlets are short-term modes of raising share-capital followed by distribution of short-term dividends to shareholders. These activities are necessary for both businesses and customers. But it harkens to the fact that the intellectual capital of Islamic transformation has remained low. Islamic institutions and buyer-seller relations have not included the ways of inducing the moral law in their institutional consciousness. The *maqasid as-shari'ah* has thus been abandoned in the face of the catchword of *shari'ah*-compliance. The *fuqaha* using traditional *fiqh* analogies have approved of such dissociated bundle of rules for gaining legitimacy. An Islamic transformation has thus failed to realize in essence. Yet such an Islamic conscious change is not in sight through the route of contemporary Islamic economic, financial, social, and socio-scientific thinking.

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<sup>13</sup> Let  $P_0$  be the selling price on the spot of an asset,  $P_0 = P_m + M(R)$ , with  $P_m$  being the market price;  $M$  being the mark-up as a function of risk factor  $R$ . At the future time " $t$ ",  $R$  has to be evaluated in order to legitimate the  $M(R)$ . Thus, if calculated  $M(R) > 0$ , then  $P_0$  is legitimate. Contrarily, if the calculated  $M(R) < 0$ , then there must be a return of excess premiums charged to the insured in whole or proportionately. The excess premium can be turned into a proportionate share toward liquidating the buying price. In this case, the buyer and seller become participants in one of the accepted Islamic modes of participatory financing. The intertemporal version of the formula financing in such a case of revised *murabaha* financing can be set up along the overlapping generation formula valuation model as referred to earlier and to be further studied later on in this work.

### 6.10. Another financial instrument of the shari'ah-compliance idea: sukuk

*Sukuk* is a certificate of proportionate ownership by the *sukuk*-holder in the asset of an Islamic investment (Ayub, 2007). The prevalent principal financing instruments, such as *musharakah*, *mudarabah*, *bay salam*, *istisna*, *ijara* (rent) can act as the basis of *sukuk*. The difference between *sukuk* and these other forms of investment financing is the *sukuk* contract of ownership. As an owner the *sukuk*-holder can liquidate his share to the investment or sell directly to other potential *sukuk*-holders. The *sukuk*-holder shares in the profits and losses of the investment as a whole. The asset backed up by *sukuk* is required to be free of interest-financing in *shari'ah*-compliant ways.

Yet, despite such features of *sukuk*, it is far from having any semblance of *maqasid as-shari'ah*. That is because *sukuk* as large investments in capital projects constitutes money of and by the very rich to promote capital investments for the urban sector. Consequently, there is no apparent sign of *sukuk*-holding by microenterprises and the marginal shareholder. The development benefits of *sukuk* do not flow to the grassroots. There is no outcome in generating life-sustaining regimes of development and poverty alleviation by *sukuk*.

The mega-capital investment nature of *sukuk* projects has recently enticed the British government to consider *sukuk* as a means of retiring her public debt (HM Treasury, 2007). *Sukuk* assets, such as rich and costly artifacts, examples of which are the Buckingham Palace, Heathrow Airport expansion, road and highway construction in the United Kingdom would invite public funds through *sukuk*-holding and allow such investors to become proportionate owners in the capital investment projects. Of course, this would be a good opportunity for large prospective and rich investors to take the benefit of both high returns and proportionate shareholding ownership. Obviously, besides the wealthy British public, the Middle East opulent investors and Islamic financial outlets will be the immediate beneficiaries of *sukuk* development. The result is money rumbling, far removed from the heartland of the marginalized target groups in the *ummah* and benefits that should be due for it through *sukuk* development. The principles of justice and self-reliance on which the *ummah* must stand are thus not within the precincts of *sukuk* of the type being contemplated by the British government in concert with Islamic financial outlets. Yet such *sukuk* financing has received the blessing of the prevalent *fuqaha* as an approved *shari'ah*-compliant outlet for funds.

Besides its incapacity to serve the goals of justice and self-reliance of the *ummah* at the grassroots, *sukuk* is a purely bond-type capitalized financing instrument with a coupon value that is obtained by the capitalization of the cash flows from the project in perpetuity. In a debt-equity formula, with equity being represented by *sukuk*, the coupon value resulting from capitalization of cash flows (C) in perpetuity at a rate of interest (i) to retire

present debt (D), implies that the cash flow equal the present debt capitalized over time by a rate of interest.<sup>14</sup>

Along the lines of arguments militating against the Islamic validity of *bay salam* and *istisna*, the link of *sukuk* with such financing instruments renders it inadmissible as an Islamic financing instrument. This is due to, despite the Prophet's own saying that would permit such financing for the very poor as exception to the general rule. Such intellectual differences in thinking are allowed in the *ijtihadi* tradition in the light of the Prophet's approval to debate even his *own* sayings (except the inspired ones) in respect of *muamalat* matters. The ultimate legitimacy of any and all such discourse must be premised in the epistemic origin. Hence the *Tawhidi* worldview remains as the ultimate essence of that legitimacy.

In the case of *ijara*, and thus *sukuk* revolving around *ijara*, the method of valuation of future rents is critical to make *ijara*-financing acceptable under the *shari'ah*. Expected rents by the probabilistic nature of future rents cannot be the basis of encashed rents that convert to a present-valuation of future rents (as cash flows). This point was explained earlier in regard to *murabaha*, *bay salam*, and *istisna* as secondary financing instruments. We have also pointed out the replacement of the present-valuation models, and thereby, of the time-value of money, by the overlapping generation model with event-related contingencies occurring "nearest" to the intertemporal distributed valuation dates.

### 6.11. Bay'ad-dayn, sale of debt: a shari'ah-compliant financing instrument?

The sale of debt is another cantankerous issue that has divided opinion among the *fuqaha* and the interpretation of *shari'ah*-compliance according to *fiqh*. This issue joins in with the rest of the Islamic financing issues to deepen the problem of lack of harmonization among the *shari'ah*-financing instruments. The same disputed areas also affect deeper understanding of

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<sup>14</sup>  $D = C/i$ . Therefore,  $C = iD$ . Now it is the same thing whether a capital project is financed by *sukuk* (equity) or by debt converted into equity. This is the well-known debt-equity swap. The securitized market of *sukuk* then responds to the capitalization rate of a debt market in comparison to expected rates that can be obtained from *sukuk*-yield. To make a financial difference between debt-equity swap and *sukuk* according to the generalization of the above formula for both, the yield on *sukuk* ( $r$ ) must be higher than the rate of interest on debt ( $i$ ). But this kind of comparison is well-known in the finance literature on the internal rate of return in comparison to long-term yield on government bond. The entire area of time-value of money is imported into the framework of project evaluation by the *sukuk* method. Thus, a *sukuk* neither yield the *maqasid as-shari'ah* goal of *ummah* future nor does carry any intellectual challenge of valuation according to the essential Islamic way that reject time-value of money and thus the entire genre of present-valuation method and its pedigrees.

the epistemic issues of conscious oneness that ought to crown the development of Islamic socio-scientific inquiry and its consequences in the *ummah* perspective of mind and matter.

The point made by the *fuqaha* that one-third of the total asset value of an Islamic enterprise (Islamic bank) can be held in debt is a ridiculous statement without any reasoned backing to it. The fact is that if this *fiqi* ruling is to be accepted in continuity of the enterprise life and in the life of the *ummah*, then a growing debt will perpetually confound any future Islamic capital market formation. Legitimated debt (*ad-dayn*) will for ever hold back the phasing out of interest rates and the invasive effect of dependency of Islamic enterprises on exogenous factors, such as loss of freedom from the aggressive attitude of corporations, governments and globalization promoting capital-intensive development regimes (Anderson, 1997). It is well-known already that a very small amount of capital and capital goods flow between Muslim countries, and that the Muslim countries have been trapped in trading hardly 9% of their world trade between Muslim countries (Islamic Development Bank, annual reports). Yet in spite of this trade divergence, the debt/export and debt/output ratios are very high.

There are problems of accepting any sound argument for sale of debt (*bay' ad-dayn*) through say debt-equity swap. This instrument arises from the side of reasoning underlying the inadmissible formula used by Islamic financial enterprises and Islamic economists for debt and equity valuation. Debt accumulation and retiring debt-by-equity swap involve complex decision-making processes. These require appropriate management organization, institutional changes, correct understanding of the relationships of financing instruments with money capital (M), spending including investment (I), and savings (S) (Choudhury, 2007a). In the Islamic economy, savings are automatically replaced by the mobilization of money capital into all forms of spending approved by the *shari'ah* for meeting overarching participatory goals.<sup>15</sup>

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<sup>15</sup> The existence of savings perpetually reduces real potential output (Choudhury & Hoque, 2004). Let  $Y_0$  denote GDP at time  $t = 0, 1, 2, \dots$ ;  $s_t$  denote saving ratio at time  $t = 0, 1, 2, \dots$ ;  $g$  denote a constant growth rate of GDP at time  $t = 0, 1, 2, \dots$ .

Disposable income after saving at time  $t = 0$  is  $Y_0(1-s)$ , which increases to national income  $Y_1$  at time  $t = 1$ .  $Y_1 = Y_0(1-s)(1+g)$ . Likewise,  $Y_t = Y_0(1+g)^t(1-s)^t$ .

Now consider,  $\partial Y_t / \partial s = -t Y_0(1+g)^t(1-s)^{t-1} < 0$

$\partial Y_t / \partial g = t Y_0(1-s)^t(1+g)^{t-1} > 0$

only due to the positive effect of  $g$  but dampened by the negative effect of  $s$ .

The results (6.1) and (6.2) remain true irrespective of a moment of time and in the continuous sense. Besides, the argument that a higher volume of savings would grow into more resources for investment in the future contradicts the fact that at any moment of time that volume of savings is a resource withdrawal. That amount of potential resource could otherwise have been used to perpetuate economic growth and thereby development and social well-being.

Here is a simple formalism. Let  $I$  denote Spending =  $C + S + T = Y$ , earned income.  $T$  denotes taxes;  $D$  denotes debt outstanding. Now if debt increases, taxes follow suit. Hence, disposable income decreases. Consequently, economic output decreases; the effectiveness of money capital on economic output decreases. Public saving increases as taxes increase. But lower economic growth reduces the propensity to invest. This causes instability between savings and investment, thus generating business cycle, and thereby financial volatility.

Debt cycles are accentuated. When the supply of savings falls below the anticipated investment, government creates forced savings by raising interest rates, or moves into counter-cyclical fiscal policy. Then the short-lived drawback in deficit formation is counteracted by higher interest rates that reduce investment. An investment crowding-out effect can be caused by such changes.

When savings are higher than anticipated investment, money capital is not effectively mobilized in the economy. The propensity to spend remains low. Governments spend autonomously. This accentuates deficits and public debt. Consequently, taxes increase, causing adversity on households, businesses and the economy.

In the end, in the business-cycle swings of the economy caused by the prevalence of interest rates, deficits, debt and taxes followed by lower real growth and stability, these features remain permanent ills of financial volatility. In such a volatile financial and economic condition, debt-equity swaps, that is sale of debt for equity, means capitalization of the debt by a coupon value, which is a shadow rate of interest. Islamic economists have copied all the methods of debt capitalization of this type to argue in favor of debt-equity swaps. This is the case mostly with Islamic banks in Malaysia, who wishfully legitimate a *fiqh* to defend their arguments and ways respecting debt-equity swap.

Therefore, establishing of debt-equity swap requires a thorough overhaul of the financial world with appropriate Islamic financial instruments that replace not only interest rates but also the shadow pricing of interest rates. Examples of the latter kind are coupon-rates, time-value of money, internal rate of return, and present-value methods of asset valuation. There would also be the need for streamlining government policies regarding expenditure, debt, monetary policies in line with the interest-free climate of Islamic finance.

## 6.12. Conclusion

The overarching and systemic issues underlying the understanding and application of *maqasid as-shari'ah* invoke a general-system learning model based on the episteme of conscious oneness. The methodology of conscious oneness is conceptualized and applied to all issues and problems of Islamic

economics, finance, science and society. This methodological approach has not been understood by the *fuqaha* and the modernist scholars in the field of Islamic issues of science and *muamalat*. Contrarily, the dissociated ways of understanding *maqasid as-shari'ah* by relegating it to traditional *fiqi* rules on specific issues has rendered the entire Islamic intellectual enterprise to the whims of divided Islamic schools of thought led by their juristic heads (*Imams*). Yet the *Imams* did not pronounce this pursuit at all. It is the latter days *fuqaha* and Islamic scholars along with institutions such as Islamic banks, Islamic Development Bank, Organization of Islamic Conferences *Fiqh* Council and the like that have caused such a rift to happen and deepen. The so-called *shari'ah*-compliant financial instruments today lie in utter disarray.

The *fuqaha* and Islamic scholars of the latter days have forgotten the most important premise of Islamic intellection in developing *maqasid as-shari'ah* across overarching domains of “everything.” This area of investigation comprises the way that conceptualization and rules (functional ontology) can be derived and formalized on the basis of the epistemic origin of conscious oneness for the world-system taken up in perpetuity of learning processes in reference to the *Tawhidi* unity of knowledge. *Tawhid* has become a mere uttered word, sounded in the backdrop of Islamic intellection. It has not been understood and used as a substantive learning power.

This chapter in continuation of the previous ones has brought out the methodology of the intellection medium for realizing *maqasid as-shari'ah* as opposed to the dissociated ways of *shari'ah*-compliance. The chapter has continued to emphasize the methodology of extracting conscious oneness from the worshipping world (*tasbih*) by the medium of human discourse (*shura*) and by using socio-scientific methods of continuous learning processes that remain embedded in unity of knowledge.

On such a holistic power of conceptualization and application of the Islamic worldview **Fatullah Gulen** writes:

We use “the horizon of hope” to mean traveling beyond the visible dimension of existence, and considering existence as an interrelated whole, in the absence of which things and events cannot be perceived as they really are. Nor can its essence and relation with the Creator as well as the relation between Him and humanity, be grasped. Scientific disciplines that conduct their own discourse largely in isolation from one another and the prevailing materialistic nature of science that has compartmentalized existence of life cannot discover the reality of things, existence, or life. (2006, op. cit, pp. 149)



## CHAPTER 7

# *Endogeneity of Ethics: The Islamic Economic and Finance System*

Throughout this book we have represented the socio-scientific variables and their relations and functions, such as the social well-being function and the circular causation relations of complementarities between variables and their representative agents, in respect of knowledge induction. We have explained such knowledge induction as the functional ontological operations in the knowledge–time–space dimension. Since the whole system of relations in any issue and problem under investigation remains premised on such knowledge induction, which is deduced from the epistemic premise of conscious oneness, *Tawhid*, knowledge is the indispensable endogenous core of such a system, the enabling connecting factor between variables.

Since knowledge-flows so derived are carriers of the moral law and the ethics deduced from this, the endogeneity of knowledge in systems also implies the same for ethical endogeneity in “everything.” The moral law and ethics become inseparable parts of the Islamic scheme of things and have specific analytical ways of their treatment in logical formalism. Such analytics lead to functional ontology of the problem under study and, thereby, to its analysis and inferences for real experience. These are altogether brought to fruition by the complete phenomenological model of the *Tawhidi* worldview, which we have discussed and showed in certain formal representations.

In this chapter, we critically evaluate the nature of ethical treatment in economics and finance by Islamic economists in view of their pursuit of mainstream economics and finance. We pursue this analysis against the backdrop of the summary of the phenomenological model of *Tawhidi* conscious oneness that endogenizes ethics and has an analytical way of its treatment. We also examine some global ethical agenda in the framework of a comprehensive idea of human sustainability and give these a different perspective in the light of the endogenous theory of ethics in the socio-scientific system, now particularized to economics and finance.



### 7.1. What is the meaning of ethical endogeneity and its analytics?

In considering the role of ethics in Islamic economic and finance theory, it is necessary to understand the nature of ethics as human behavior derived from the foundation of *Tawhid* (oneness of *Allah* = unity of the divine law) through the transmission medium of the *Sunnah* (guidance of the Prophet Muhammad). These are together taken up as the basis of spiritual guidance in Islam – *hudal il-mutaqqin* (*Qur'an*, 2:2). This foundation of Islamic epistemology in concert with the medium of epistemological discourse among the learned participants establishes the idea of a *System* and its embedded circular causation relations in view of the ethics in the *Qur'anic* world-system. It is also necessary to understand how ethics, as so derived from the epistemological roots and processed through the ontological investigation of values and directions for rule setting pertaining to given issues at hand, establish the premise of the *shari'ah* along with its *ijtihadi* (foundational Islamic investigation for rule setting) extensions.

The following cursory definitions of some key terms need to be kept in mind by the reader:

Epistemology – a theory of knowledge and its organization.

Ontology – a formalism that presents the understanding of the being of things.

*Tasbih* – hidden conscious worship of the oneness of *Allah* in the order of reality.

*Shura* – consultation medium prescribed by the *Qur'an* to discourse institutionally on the formal ontological aspects of the divine roots of knowledge and their impact on the world-system in every detail.

Endogeneity – systemic learning and inter- and intrasystem interrelationships.

Exogeneity – external to systemic relations, existing as factors impinging on the system from outside it. Such effects are not determined within the system itself.

### 7.2. Ethical endogeneity in the shari'ah

First, ethics is not the primal signatory of well-being in Islam. Ethics is derived from the moral law, which is the divine law (*sunnat Allah*), and is central to all of reality. In this regard, the *Qur'an*<sup>1</sup> declares that the *sunnat*

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<sup>1</sup> *Qur'an* (48:23): “This has been the Way of *Allah* already with those who passed away before. And you will no change in the Way of *Allah*.”

*Allah* remains immutable over space and time in respect of all realities of life, experience, and thought. *Sunnat Allah* is intrinsically the law of unity of divine knowledge, from which all subsequent understanding of worldly knowledge and its cognitive forms proceed toward constructing reality Ghazali (Marmura, 1997, pp. 105–107). Worldly knowledge-flows and cognitive realities pertaining to particular and general issues of life and thought as derived from the *Tawhidi* episteme are transmitted by the medium of the *Sunnah* (guidance by way of prophetic practices, sayings, and exhortations) of the Prophet Muhammad to the human ontological level of abstracting the understanding of the nature and substantive content of the issues and problems at hand. This is the stage of establishing spirituality (*tasbih*),<sup>2</sup> and carrying on such functional ontological abstraction to the level of learned and devoted discussion within the consultative body called the *shura* (*Qur'an*, Chapter 42, *As-Shura*).

The combination of *tasbih* and *shura* as the *tasbih–shura* composition of knowledge formation establishes the initiating stage of moral and ethical cognition. The ontological stage of *tasbih* is one of abstracting an understanding of the concept behind the issues at hand in the particular process (stage) of the *tasbih–shura* experience. But by no means does this stage (process) represent the fullest understanding of the *tasbih–shura* experience pertaining to the issue under discourse. Similar ontological abstractions in advancing processes of learning open up the heightened recognition of fresh knowledge-flows and their knowledge-induced world-system. Every stage of the *tasbih–shura* process marks evolved cognition of the underlying worldly reality as reflected by the knowledge-induced cognitive forms in the context of conscious oneness. From this knowledge-induced premise of the concrescent, flow the concomitant concepts, entities, and experience.

From the epistemic origin of the moral law, through the ontological abstraction of *tasbih–shura* stage of knowing, and the onward stage of understanding, formalizing, and thus organizing, followed by the analytics and applications relating to the unraveling of worldly issues, comes about the derivation of the *shari'ah*. The *shari'ah* encompasses the above-mentioned three stages. Thus, the *shari'ah* takes its permanent moral code from the *Tawhidi* episteme and its transmission via the *Sunnah*. This immutable epistemic core is then encircled by the domain of continuously evolving causality determined by the impact of *Tawhid* (oneness) on the world-system as simulated by *tasbih–shura* discourse and its process-simulated empirical viability (explained in Chapter 6 and empirically

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<sup>2</sup> *Qur'an* (59:24): “He is *Allah*, the Creator, the Evolver, the Bestower of Forms (or Colors). To Him belong the Most Beautiful Names: Whatever is in the heavens and on earth, declare His Praises and Glory: And He is the Exalted in Might, the Wise.”

examined in Chapters 8 and 9). *Tawhid* now conveys the meaning of unity of the divine law. It reflects the intellection of the oneness of *Allah* in the Signs of *Allah* (ontic evidences of conscious oneness) through the divine law working in the world-system. This outer circle is continuously and perpetually expanding under the impact of *Tawhid* and *Sunnah* on the formation of worldly knowledge and its evolved cognitive forms through the evidential process of discourse.

According to the above stages, the following classified sequences are established: First, it is the *Tawhidi* episteme, which is transmitted by the *Sunnah*. Second, the moral understanding of an issue under investigation is conceptualized through *tasbih–shura* experience. Third, the *shari’ah* is derived as the classification of rules delineating the interplay of the above two experiences in formalizing and analyzing worldly issues and problems under investigation. The rules that so arise and are followed by their observance convey the meaning of ethics. In this sense, Islamic ethics neither is behavior, as in the case of the concept of humanism, nor is a case of rationalism, as in the case of instrumental rationality (Etzioni, 1988). According to the above understanding of the interrelationship between the *Qur’an*, the *Sunnah*, and the *shari’ah* in the derivation and application of rules and tenets as derived from the medium of unity of the divine law (*Tawhid*), Islamic ethics becomes a manifestation of individual and social behavior in concert with the *tasbih–shura* experience that is endogenized in the learning world-system.

### **7.3. Ethico-economic general equilibrium in endogenous ethics**

Next, we need to understand the idea of an economic system. It is a misnomer to speak of such a system in isolation of the embedded system of circular causation interrelationships between the moral law, the *shari’ah*, and the economic, social, scientific, and institutional and other subsystems of the human order. The collection of such subsystems in the extended embedded domain of human ecology calls for attention to the theme of ethics and the world-system (Holton, 1992, *op cit*; Choudhury and Hoque, 2004, *op cit*).

In such a relational epistemological concept of morality, ethics, and the world-system, with economics and finance as a particular subsystem, the role of knowledge derived from the *Tawhidi* episteme remains primal. Such knowledge-flows induce the systemic entities, variables, and their embedded systems. Knowledge thus induces the meaning and action resulting from moral behavior. From this premise is derived the edicts of ethical behavior. Once ethics is so understood in the light of the *Tawhidi* knowledge induction, it then, like knowledge, becomes an endogenous value in the conrescent world-system and its economic relations for the

special case. The meaning of concrescence as relational epistemic and ontological consequences was developed by Whitehead (1938).

Such a concrescent order makes the embedded economic relations endogenous in a dynamic ethico-economic general equilibrium system. The dynamic nature of the ethico-economic interrelationships is not due to the time factor. Rather, only knowledge-flows derived from the *Tawhidi* foundation have any direct effect on structural human, social, and physical transformations. Such structural transformations are represented in terms of dynamic individual preferences or functional menus and, thereby, in socially aggregated preferences and scientific algorithms, together causing institutional changes to come about by such knowledge-induced dynamic preferences and relations. The relationship between knowledge and time in this case is that time records the flow of knowledge and the state of knowledge-induced cognitive forms. Time *does not cause* change. The primacy of knowledge, even beyond the human material world, is mentioned in the *Qur'an*.<sup>3</sup>

The dynamic nature of changes in preferences and menus (algorithms) and their social aggregative effect on institutional behavior and structural changes is caused through the complete *tasbih–shura* learning process that leads to the normative stages of reconstruction, formation, and explanation of the relationally unified world-system and its entities. This experience thereafter evolves into subsequent levels of knowledge. Its continuity carries on across similar processes of the world-system. Such a process-oriented methodology is universally applicable to all issues of embedded systems creating socio-scientific symbiosis. Likewise, the same methodology is applied to the case of ethics, economics, and finance in the context of endogenous learning behavior (systemic).

#### **7.4. An example of endogenous ethico-economic general equilibrium system**

An example pertaining to the ethico-economic general equilibrium relations is the concept of capital. Capital understood as the accumulation of savings through the medium of interest rate is endogenous in respect of the role of interest–saving relationship in mainstream economics. This is an unethical causation, for interest rate causes bank savings to form. Macroeconomic “bank-savings” as withdrawal of resources interrupt the mobilization of potential resources into the real economy. The resulting scarcity of available resources in the real economy and the halting of

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<sup>3</sup> *Qur'an* (2:117): “To Him is due the primal origin of the heavens and the earth: When He decrees a matter, He says to it: ‘Be’ and it is.”

potential production expansion cause trade-offs rather than complementarities between goods and productive factors, between the real economy and money and financial resources, between price stability and sustainable development, between economic efficiency and social justice, and between poverty alleviation and economic growth, etc.

Contrarily, consider the role of the principle of pervasive complementarities (Xuemou and Ding, 2005; Yolles, 2006) emanating from continuous and extensive unification between knowledge-induced cognition and entities that arise from the ethical understanding of the moral law in Islam. In this case, the perpetuation of knowledge-flows and the consequential emanation of and circular causation relationships between the entities of the ethico-economic general equilibrium system establish the endogenous nature of ethics affecting the economic variables.

Consequently, the money, finance, and real economy complementarities persist. Complementarities between goods and services compliant with the moral law become pervasive. Social and economic objectives become complementary, and many such learning linkages appear with opportunities abounding along with the generation of knowledge-flows and their generated complementarities in the learning ethico-economic system. Such pervasively complementary relations are the logical consequences of the circular causation relationships between the knowledge-induced variables as carriers and evolvers of the endogenous learning processes. These dynamics of the complete *tasbih–shura* stage, until its end in a given complete learning process, are followed by continuous evolution of new knowledge-flows and knowledge-induced forms in subsequent learning processes. See expressions 3.1–3.4 and Figure 6.1. Such learning processes in unity of divine knowledge are characterized by systemic IIE.

The nature of capital as a putty-clay of material value immersed in the moral law can now be understood as spiritual capital (Zohar and Marshall, 2004). Dissociating the material from the moral parts cannot do capital valuation. The two are inextricably intertwined. The way of valuation of spiritual capital is through the medium of ethical transformation of individual and social preferences, ethical market exchange, ethical menus, institutional transformations, and continuous learning by discourse on the basis of the *Tawhidi* law of unity of knowledge and its induced world-system.

### ***7.5. Contrariwise: exogenous nature of ethics in economics***

Contrary to the endogenous nature of ethics in all world-system issues, particularized here to the ethico-economic general equilibrium system, is the concept of ethics as exogenous value. This is the nature of ethics found in all of mainstream economics, most centrally in neoclassical economic theory (Phelps, 1989). The absence of an organic composition of

knowledge in neoclassical socio-scientific entities causes noninteraction and nonintegration along the time-dependent evolution of technology or any form of learning as datum. This character of economic neoclassicism presents the problem of ethical exogeneity in economic and finance theory as a whole.

The problem of ethical exogeneity remains unresolved even in Sen's (1990b) deontology in preference maps (duty-bound consciousness), as there is no room here for endogenous changes in preferences arising in a cyclical manner between ontology and the "ontic" (evidential) world-system events toward defining the process orientation of learning in the embedded economic domain.

Likewise, in Rawls' theory of justice, the problem of ethical endogeneity remains unresolved because of its methodological leaning on neoclassical second-best principles (Rawls, 1971, *op cit*). Rawls' social transformation merely requires institutional intervention for changing the pattern of unequal resource allocation but not the second-best Pareto condition of suboptimal allocation of public goods.

In Nozick's (1974) entitlement theory, the problem of ethical endogeneity enters into analysis by its utilitarian and neoclassical orientation in resource allocation promoting minimal government intervention. This is a case of marginalist trade-off between markets and government (institutional).

In the end, market exchange remains completely removed from the capacity to induce human behavior to be ethical by any self-organizing (endogenous) role of knowledge attained through circular cause and effect between essence and form. The same depiction of ethical exogeneity is translated into institutionalism and social contractarian theories of a non-Islamic genre, for these are treated as linear aggregations of the utilitarian type of individual preferences and menus working through system relations to impact upon similar ontic forms at the utilitarian institutional level (Quinton, 1989).

### ***7.6. Ethics, economics, and moral consequentialism***

A problem of ethics and individual and social preference formation is that of ethical consequentialism. Consequentialism deals with the social evaluation of an act in view of the degree of its good or bad effects, for which there exists a reward or a censure, respectively. In view of the *Qur'anic* exegesis relating to ethics, duty, and the moral law, an act (ACT) and its reward or censure (CR) is determined in accordance with the certitude of the moral law involving individual rights and freedom taken in their social context.

We note here that the moral law prevails uniquely over ACT and CR. The moral law must, therefore, first be able to define and evaluate the social consequences of ACT in enforcing the censure or reward, CR. The

high ground of moral law over an ethical rule must make this a necessary and sufficient condition for the existence of the *tasbih–shura* mapping onto the world-system.

Take the example of financial interest-transactions and inequitable distribution of wealth and resources, as opposed to the case of resource mobilization and distributive equity gained by participatory economic arrangements and their underlying financial instruments. Each of these two paths independently results in their ACTs and consequences that have their respective censures and rewards (CRs). The moral law of unity of divine knowledge as a system of unifying relational epistemology premised on *Tawhid* invokes pervasive complementarities. The consequence of such complementarities is knowledge formation, which opens up the doors to opportunities and productive transformations. Opportunities combined by production diversification bring about human participation and well-being. This combines with risk diversification as well. The ACT and CR premised on the rule of the moral law are thus defined in the case of an interest-free economic system.

Contrarily, the presence of interest rates holds back resource mobilization due to the holdup of financial capital in bank-savings. Owing to such withdrawal of saving as potential financial resource, productive capacity is lost; economic and social opportunities suffer; consequently the potential well-being to society is not realized. Here again, the absence of the moral law and the unethical ACT determines the censure for interest-based economic and financial system.

Consequences of ACT and CR thus become important reference points for understanding the impact of the moral law in establishing the certitude of its relationships with an act. “Consequence” thus plays an important evaluative role in both the epistemological and ontological premises of the moral law and its ethical manifestation by act and preference behavior.

### **7.7. Deontological consequentialism**

The above discussion of the interrelationship between deontological behavior (duty bound) and consequentialism defines the idea of deontological consequentialism as the broad spectrum of generalized evaluative interrelationships associated with a domain of consequences emanating from rule-based acts and their rewards or censures in the light of the moral law. In Islam, the moral law stands as the primacy of the *shari’ah* to configure the field of deontological consequentialism.

The permanence and universality of the moral law in all systems impact simultaneously on both ACT and its censure or reward (CR). The function of ACT is a proactive one in the sense as Sen has used (Sen, 1990a, p. 75): “To get an overall assessment of the ethical standing of an activity it is necessary not only to look at its own intrinsic value (if any), but also at its instrumental role and its consequences on other things, i.e., to examine the

various intrinsically valuable or nonvaluable consequences that this activity may have.”

In the *Tawhidi* case, we understand ethical conduct as a functional derivation of knowledge-induced rules on ethical issues that form discourse, as explained above. Now a two-way recursive causal inter-relationship between the knowledge-flows (ACT) and their concomitant results (CR) is implied. The forward and backward relations are recursive of each other in the sense of circular causation.

In this way, by expanding the discursive knowledge-flows, we can develop multiple unifying linkages between embedded systems and their entities. Such an extensive web of interlinked relations is caused by circular causation between the entity-variables and their knowledge-induced forms.

The difference between the deontological domain and the domain of consequences is this. The deontological domain invokes moral duty that is proactive and hence extensive. The domain of consequences is based on either the enactment of a rule carrying with it a measure of CR or conscious realization of the responsibility by individuals and society for doing an ACT. In the domain of consequences, CR can be enacted, though not necessarily always applied (e.g., Islamic example of stealing not followed by amputation does not negate the ultimate injunction of the *shari'ah*). In the case of deontology, a duty associated with CR emerging out of *shuratic* discourse is always binding, it being premised on the divine law as the moral law and occurring through learned discourse to establish its authority.

### ***7.8. Justice, fairness, equality, and responsibility in respect of the good things of life***

In the context of consequences of ACT and CR under the moral law, as explained above, the meaning of justice and its attributes are derived from the *Qur'an* and then applied and practiced. The *Qur'anic* meaning of Justice and fairness (*adl*) is to derive the law of equality and then to firmly prevail on it though with compassion (*ihsan*). Thus, the stage of *tasbih-shura* discerns the principle of equality, fairness, and justice, once such principles are derived from the *Qur'an*. The *Qur'an* declares (16:90): “*Allah* commands justice, the doing of good, and liberality to kith and kin, and He forbids all shameful deeds, and injustice and rebellion: He instructs you that you may receive admonition.” This verse points out the nature of the principle of justice in the *Qur'an* (i.e., in the *Tawhidi* episteme). This principle is then understood on specific matters under discourse, through the *tasbih-shura* experience. The *tasbih-shura* experience then results in the rules and edicts of the *shari'ah* in respect of the rule of justice, fairness, and equality in the good things of life. This total experience toward deriving the meaning and application of justice, fairness, and equality constitutes the translation of the moral law into ethical rule with its measurements of ACT



and CR as associated with the implementation of the principle of justice, fairness, and equality.

Contrarily, rationalist epistemology or the basis of pure reason alone is avoided in the enactment of the meaning and application of justice, fairness, and equality. The *Qur'an*, for the moral law, rejects all such extraneous premises of reference. Such other liberal theories of justice are expounded by Rousseau (Cranston, 1968), Rawls (1971) and others. See Kipnis and Meyers (1985) for several such ideas. On the other hand, the *Qur'an* (4:105) calls for strict abidance by the *Qur'anic* injunctions on matters of justice, fairness, and equality: "We have sent down to you the Book in truth, that you might judge between men, as guided by *Allah*; so be not (used) as an advocate by those who betray their trust."

The matter of differences in the subtle nature of justice, fairness, and equality can be sorted out by the *ijtihadi* (epistemological investigation) effort at the level of *tasbih-shura*, to be then carried on through the entire *shuratic* processes for a final determination over such processes of learning in relationship with the well-being concerning evidential entities in the world-system. Here too, the *Qur'anic* law (*sunnat Allah*) is invoked through the *Sunnah* for launching the *tasbih-shura* discourse on matters of equality and fairness along with justice and compassion. The strictness to rely primarily on the *Qur'an* is pointed out in verses 177–182.

We note in these verses that charity (*zakah*), prayer, fairness, equality, justice, and compassion are conjoint moral attributes. In these, the *Sunnah* establishes the modes of charity and prayer, which then merge with the practice of the law of equality, fairness, justice, and compassion. In ethical parlance, which is derived from the moral law through the *tasbih-shura* experience linked with the ethico-economic general equilibrium system, it is noted that the *Qur'an* has given a central place to the social, economic, and financial roles of distribution of wealth toward attaining the high calling of justice, fairness, and equality with compassion. A major part of the *Qur'anic* Chapter 2 (The Heifer) brings out this critical moral point. The ethical consequence of the circular causation embedded in the ethico-economic system is explained by the deepening interrelationships between charity (*zakah*), prayer (*salat*), fairness, equality, justice, and compassion.

On the matter of responsibility as a social trust of the individual and the social collective, we also find similar circular causation between the interlinked functions of this critical attribute of responsibility. The *Qur'an* (4:58) declares: "Verily, *Allah* commands you to render back your trusts to those to whom they are due; and when you judge between men, you judge with justice: Verily how excellent is the teaching which We give you! *Allah* is ever All-hearer, All-Seer." All the dynamics of the *tasbih-shura* experience in response to the moral law and the derivation of ethical meanings and rules coming out of the consequential ethico-economic general equilibrium system of relations are once more applicable in the inference gathered from the verse.

### 7.9. A critique of ethical meanings in contemporary Islamic literature

The endogenous nature of ethics in the *Tawhidi* moral law along with its explanatory and analytical dynamics is quite different from the way that ethics and some of its attributes, as mentioned above, have been explained by Naqvi (1994, 2003) in reference to neoliberal approach to Islamic economics. One finds in these books that their first parts, which are conceptual in nature relating to the author's understanding of Islamic ethics and economics, divulge Naqvi's axioms of *Tawhid*, Equilibrium, Free Will,<sup>4</sup> and Responsibility. Yet these being relationally "independent" axioms in Naqvi's works, no endogenous or dynamic circular causal relationships exist between them and hence between the variables signified

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<sup>4</sup> Naqvi's postulates are derived from the *mua'tazilah* doctrine of Free Will (2003), which paved the way for outlandish rationalist thinking in Islamic scholasticism borrowing from Greek mystical philosophy and amalgamating it with the *Qur'an*. The *mua'tazilah* interpreted the *Qur'an* in the light of their rationalist thinking based on Greek peripatetic thought and ignored the *Sunnah* of the Prophet. Naqvi eulogizes the *mua'tazilah* in his words (2003, p. 161): "Contrary to popular misunderstanding, *Mua'tazili* rationalism worked strictly within theological limits."

There are serious analytical flaws in Naqvi's postulates as well. Consider his claim of treating the four postulates as independent basis vectors. First, if it is so, then the three of the postulates remain independent of *Tawhid*. Thus, *Tawhid* is not primal in his arguments. Contrarily, if *Tawhid* is to be taken as primal as it must be, then the other postulates must be defined in terms of *Tawhid*, and the postulate of Free Will has to be abandoned, even in the case of rational choice, a neoclassical axiom. Thereby, the whole system then degenerates into one vector alone, that of *Tawhid*. Free Will as rational choice is abandoned because marginal rates of substitution and postulate of resource scarcity are rejected in the learning world of conscious oneness that grounds the whole of Islamic thought.

Let us keep on going in the criticism. Even if Naqvi were to say that Free Will was choice between the truth and the falsehood (*ikhtiyar*), these choices lie in disjoint spaces of decisions. If the truth is selected, then it is determined by the knowledge of the *Tawhidi* episteme. Such Free Choice is then independent of *Tawhid*, and hence it cannot be a member of the basis vector, as Naqvi claims. Contrarily, if the falsehood is selected, then too it is determined by *Tawhid* by the *Qur'anic* explanation of complementation (mathematical opposite) of the truth but by the law of *Tawhid*, and not rationalism. In this case too, Free Choice of falsehood is based on its determination by *Tawhid* as an opposite reality. In none of these cases, Free Choice as *ikhtiyar* is a basis member independent of *Tawhid*.

Naqvi's basis vector is not a quantitative form, and cannot therefore represent the vectors of truth and falsehood spaces, one opposite (mathematical complementation) of the other. But for the sake of arguments, let me say that a vector of the truth space (likewise, falsehood space)  $x$  be spanned by Naqvi's basis vector  $(x_1, x_2, x_3, x_4)$ . Then,  $x = \sum_{i=1}^4 a_i x_i$ . Likewise, another vector " $y$ " is a linear transformation of  $x$ , with  $y > x$  in terms of higher level of Islamic choice.  $y = \sum_{i=1}^4 b_i x_i$ ,  $a_i$  and  $b_i$  are nonzero scalars.  $\sum_{i=1}^4 (b_i - a_i) x_i > 0$ . Since each  $x_i > 0$ , mathematically it is possible that for some " $i$ "  $(b_i - a_i) \leq 0$ . In such a case, degeneration in any of the postulates would not sustain the other postulates since they form the basis vector. Hence, this is a contradiction in Naqvi's postulation of the basis vector. Naqvi's formulation remains untenable.

by these axioms. This inference on the mutual independence is extended to the representative entities connected with the variables. The axiom of *Tawhid* thus becomes a benign statement. It is not used in the organic development of ethics in economic issues. Consequently, there is no delineation of an ethico-economic general equilibrium system that could endogenize knowledge-flows derived from *Tawhidi* dynamics in such a system.

Besides, the concept of equilibrium used by Naqvi is a neoclassical one. It is not dynamic in the sense of evolutionary equilibrium and simulation of social well-being with circular causation relationships between the variables (Burstein, 1991; Choudhury, 2006b, 2006c, 2006d). The second part of Naqvi's books treat policies exogenously and independently of the first part. Contrarily, endogenous ethics requires a logical deduction of policies that are endogenous in nature and derived and operative in the ethico-economic general equilibrium system. For a detailed critic of Naqvi's, see Choudhury (1996).

A similar critical evaluation can be made of the idea of moral filter (Chapra, 1992). As Chapra presents it, the moral filter is a neoclassical idea of ethical optimality, from which arise optimal conditions of utility and resource mobilization. The assumption of individual ethical perfection, and thereby, of optimal restructuring and government intervention, remains inherent in this argument. An underlying assumption of ethical egoism is thereby ingrained in such a moral filter-based optimality and equilibrium mechanism. Besides, Chapra's derivation of the moral filter mechanism has no relational reference to the *Tawhidi dynamics* as we have explained it, despite that Chapra mentions *Tawhid* as an "independent" axiom standing silently on the sideway with other axioms, namely, Muslim Vicegerency with its Universal Brotherhood, Resources as Trust, adoption of Simple Human Life-Style and Freedom.<sup>5</sup>

The moral filter mechanism and its social connotation as explained by Chapra remain first an individual's optimal state of ethical perfection within a personal utility criterion of subjective determination. In such a state of linear preferences, no lateral aggregation of the consequential deontology of individuals can be done to come up with the social well-being level of preference aggregation. At the end, ethics remains merely stated, as conceptualized by Chapra, but not organically functional and endogenously embedded in any formal way with analytics.

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<sup>5</sup> Here is another proliferation of axioms for the Islamic economic system. How many will there be with so many minds? This is a clear notion of failure of harmonization due to incorrect formulation of the epistemic foundation of Islamic worldview according to whims and rational ideas. *Tawhid* remains isolated as the only origin in such random search for Islamic identity and roots.

### **7.10. A general perspective on ethics in Islamic economic and finance theory**

The development of Islamic economics along lines of the neoclassical economic paradigm has been an impediment in the development of a robust theory of morality and ethics in economics and finance. This is true in general, but particularly in the context of an exogenous, as opposed to an endogenous theory of ethics in a systemic sense in Islamic economics and finance.

The ideas of ontology and epistemology that grounded the works of Imam Ghazali, Ibn Taimiyyah, and Imam Shatibi were not in this category of exogenous ethics. In the case of Imam Ghazali the self and its connection with the doing of good with consciousness of God played a fundamental role in the formation of endogenous (or self-organizing) human preferences. In the case of Ibn Taimiyyah, the social regulatory body of a market function, the *Al-Hisbah Fil-Islam* can be seen as a blending between the purpose of the *shari'ah* (*maqasid as-shari'ah*) and the market system (*muamalat*). In the case of Imam Shatibi, the endogenous nature of ethics in social well-being function is reflected in his concept of *maslaha*, the public purpose that leads to the attainment of social well-being. Yet in recent times such medieval and early Islamic thoughts on ethics, economics, finance, and society faded away with the encroachment of rationalism and neoclassicism in the understanding of the relationship of ethics and economics in the works of the Islamic contemporaries. The moral law and ethics have not been understood as organic forces in the system under study.<sup>6</sup>

### **7.11. Summarizing the concepts of ethical endogeneity and exogeneity**

In summary on ethics, economics, and finance as a particular case of the wider field of valuation of the ethical socio-scientific order, it is noted that ethics is a derived attribute of human behavior and action according to the primacy of the moral law of *Tawhid* and its process-oriented dynamics as initiated by the *tasbih–shura* learning experience. In such a methodological approach of deriving meaning, understanding, formalism, and application of ethics within the study of ethico-economic general equilibrium system,

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<sup>6</sup> Naqvi and Chapra's experiments on Islamic axiomatic postulations of economic theory are contrary individual groping without harmonization. Such is the mark of the limited idea of *shari'ah*-compliance that soon gives in to its limitations within the narrow bounds of problems and issues. As opposed to these postulations, the organic dynamic worldview of *Tawhid* as *functional* ontology in "everything" establishes the only acceptable epistemic axiom as universal and unique.

all references to non-*Qur'anic* premises must be strictly avoided. This has also been the belief of leading devoted scholars of the *shari'ah*, such as Ibn Al-Arabi (Chittick, 1989); Shah Waliyullah (Jalbani, 1985) and Mujaddid (Faruqi, 1977).

An example of the contrasting worldviews of *Tawhid* and the non-*Tawhidi* approach on justice, fairness, equality, and compassion as ethical attributes can be noted. The *Qur'anic* Law of Inheritance stands as a pedestal of justice, fairness, equality, and responsibility in the *Tawhidi* worldview. Yet in the context of Occidental liberalism, the *Qur'anic* Law of Inheritance is viewed contrarily to all non-*Tawhidi* concepts of justice, fairness, and equality (Murden, 2002). Consequently, the premise of the moral law, the emanating methodology, and the "Consequences" following ACT and CR are all differently conceptualized and applied between the Islamic and contrary cases. The treatment of ethics as endogenous attribute of behavior and action in the framework of unity of divine knowledge and its unified world-system of relational epistemology differentiates itself from all other world-systems. The *Tawhidi* criterion of unity of divine knowledge forms the embedded Islamic ethico-economic system.

The *Tawhidi* worldview in relation to the moral law, ethics, and embedded socio-scientific systems is revolutionary in nature and singularly different from all other perspectives on these primal domains. Neoclassicism, for example, has no methodology that could treat the central issue of continuous learning and pervasive complementarities between entities within and across systems. The segmentation between microeconomics and macroeconomics is a rationalist dichotomy in economic reasoning that is riddled with the problem of aggregation from the small to the large, and deconstruction from the large to the small. The *Tawhidi* worldview methodology of unification of knowledge in systems deals with complex aggregation. In such construction, ethical decision-making by learning on unity of knowledge as the groundwork for complex aggregation is central. Thereby, the dichotomy between microeconomic and macroeconomic reasoning is overcome, and decision-making and ethics as behavior derived from the moral law become intrinsic to complex systems.

In these systems, the preferences and menus are based on endogenous learning that generates dynamic process of interaction. Interactions lead to integration (IIE). These dynamics render evolutionary learning processes to the episteme of unity of knowledge as the divine ordainment. Neoclassical economics, the aggregation problems of mainstream economics, and Islamic economics and finance entrenched in mainstream economic reasoning are incapable of genuinely defining, explaining, and applying ethical endogeneity as derived from the moral law by the medium of *Tawhidi* learning in continuity. The endogenous circular causal relationships between the moral law, ethics, and world-system are possible only in the *Tawhidi* worldview methodology of unity of knowledge.

### 7.12. Endogenous global ethics in comparative Islamic perspectives

Some of the major areas of global ethics are poverty alleviation, sustainability, and resource sharing on just and fair terms between nations and economic groups. On such global targets, the International Monetary Fund, the World Bank, United Nations Commission on Social Development, the Millennium Development Funds, and Human Development Reports have written well. The problems of development persist not because of the intents of these major development-finance organizations in the world scene, rather they are due to the pursuit of the ethical questions in the absence of the moral law and within the framework of mainstream economic and development-finance theories and their institutional perspectives. Let us examine these issues and provide the *Tawhidi* Islamic alternative.

The World Bank (2000) and the UNDP (several annual reports) have both pronounced the need for extensive participatory forms of development in which the empowerment of the poor and the marginalized village sector can be enhanced by letting them chart their own decisions and constructive futures. It is the task of the development organizations in concert with national development plans and regional development-finance organizations to look into such participatory possibilities. Sustainability is attainable by the learning exchange that instills progressive development with participation as learning through discourse at the grassroots (Ekins, 1992; Jackson and Kassam, 1998).

On such issues of global ethics the World Bank (2000, p. 6) writes:

The choice and implementation of public actions that are responsive to the needs of poor people depend on the interaction of political, social, and other institutional processes. Access to market opportunities and to public sector services is often strongly influenced by state and social institutions, which must be responsive and accountable to poor people. Achieving access, responsibility, and accountability is intrinsically political and requires active collaboration among poor people, the middle class, and other groups in society. Active collaboration can be greatly facilitated by changes in governance that make public administration, legal institutions, and public service delivery more efficient and accountable to all citizens – and by strengthening the participation of poor people in political processes and local decisionmaking. Also important is removing the social and institutional barriers that result from distinctions of gender, ethnicity, and social status. Sound and responsive institutions are not only important to benefit the poor but also fundamental to the overall growth.

The World Bank Development Report continues on to comment: “There is no hierarchy of importance. The elements are deeply complementary. Each part of the strategy affects underlying causes of poverty addressed by the other two.”

The United Nations Commission on Social Development 37th Session (1999) has much to say on the delivery of services through cooperation between governments and different sectors in the economy. Special

emphasis is made on the central role of governments in the development and delivery of social services, especially in developing empowerment projects for women. A participatory nature of social development for attaining general well-being is thus emphasized.

The IMF's *Commission on Global Governance* (1995) vision of global ethics is sounded through the need for reformation of the global governance system. The IMF defines the binding ethics as those values that are agreed upon by civic norms among all peoples, nations, individuals, and groups. It intends to attain such civic norms through the Western philosophy of democracy. The words of Barbara Ward (IMF, 2008, p. 47) in her paper to the Pontifical Commission on Justice and Peace are sounded as the groundwork for a new vision of ethical reality in global ethics. She writes:

The most important change that people can make is to change their way of looking at the world. We can change studies, jobs, neighbourhoods, even countries and continents and still remain much as we always were. But change our fundamental angle of vision and everything changes – our priorities, our values, our judgments, our pursuits. Again and again, in the history of religion, this total upheaval in the imagination has marked the beginning of anew life – turning of the heart, a 'metanoia', by which men see with new eyes and understanding with new minds and turn their energies to new ways of living.

There is increasing acceptance of the concept of sustainability as being broader than simply involving the physical environment and its present and intergenerational conservation. Sustainability means extending the theme of environment to the relational order of learning. Agius (1990) and Inglott (1990) present the Professor Whitehead's idea that life, community, society, history, and civilization and the multifaceted elements that these embody comprise a vastly relational process of existence. In it the learning dynamics of process defines the meaning of sustainability. In its midst, the individual is an embedded entity of society. The human is thereby a continuously becoming entity in the state of the global ontological being. By encapsulating Whitehead's process philosophy (Whitehead, Griffin, and Sherburne, 1979), Agius (1990, pp. 82–83) succinctly summarizes the intergenerational process idea of sustainability in the functional ontological sense:

... Whitehead's philosophical understanding of the universe as an interconnected web of relations, as well as the ontological nature of the relational self offer a new paradigm of human society. In contrast to the individualism of the liberal tradition, process philosophy defines human society as a relational structure of experience. ... "The present holds within itself the complete sum of existence, backwards and forwards."

Whitehead defines common goods as intergenerationally shared social goods, such as environment, fairly shared and distributed resources across mankind, and the ethical goods that remain transcultural and transcivilization. The common good is thus seen as a relational entity that is shared

and enjoyed on a social valuation scale of the present, mixed in the context of the past and future for all of mankind.

The process idea of human well-being is today taken over in the field of sustainable development. **South Commission (1990, p. 13)** defines development as “a process of self-reliant growth, achieved through participation of the people acting in their own interests as they see them, and under their own control.”

Within this ethical idea of sustainable development, we can place the meaning of human development according to **Demarting (1999)**:

The human development index (HDI) measures the performance of different nations and regions in promoting the wellbeing and opportunities of their inhabitants. The HDI is a composite measure of human development, comprising three dimensions of what constitutes a valued life. These are: (a) the capability to lead a long and healthy life; (b) the ability to acquire knowledge and to participate meaningfully in the life of the community; and (c) the ability to achieve human welfare via the acquisition of vital goods and services.

### ***7.13. A critical examination of the global ethical paradigms***

The above and several similar ideas presented in the search for an agenda of global ethics sound magnanimous for the human race. Any or all of them ought to be accepted, no matter from which source they arise or from the commonness of all the sources. But the same ideals ought to be examined against methodological and practical realities to be adopted. The question then to follow is where and which is the ideal that must establish the groundwork of global ethics. This must be the one that remains unique and universal to all of mankind over space and time and beyond. It must be equally acceptable to the generality of living experience spanning the totality of socio-scientific fields.

#### ***7.13.1. World Bank and UNDP poverty-centered growth***

Our first reaction is that even if poverty-centered development and along with it the idea of sustainable human development is promoted in the global forum, nonetheless, these are premised on the growth-centered perspective of structural change. This is the approach that the World Bank and her sister international development organizations (UNDP, IMF) undertake. The well-known constraints of conditionality in IMF loans and World Bank's attenuating formula financing constrained by structural adjustment have bedeviled the recipient developing countries. In some cases, the presence of IMF conditionality and World Bank structural adjustment programs has intensified the depth of poverty (**Payer, 1982**).

The reason for this is the efficiency-driven growth orientation, as in the classical and neoclassical growth models that present a permanent resource scarcity scenario. This approach entrenches the marginal substitution



postulate into economic reasoning and its institutional responses. The effect of technological change, ethics, values, and policies remain exogenous factors in such resource allocation problems (Solow, 1980). Our view of economic and social reality is warped by the way that theory and its policy applications drive institutions and development planning. Learning behavior by participation and discourse, both resulting in human empowerment and representative development planning, cannot be explained by the resource-constrained growth models.

That is, neither the technology to enhance resources continuously exists in discovering resource augmenting possibilities nor does participatory discourse lead to the continuous rediscovery of ways and means to augment resources. All such implements for realizing human futures remain exogenous to the complementary perspective of economic growth (efficiency) and social justice (poverty alleviation) treated simultaneously without trade-off. A participatory endogenous learning-induced market-institutional interactive model needs to replace all vintages of neoclassical models even though the latter has been extended by endogenous growth theory (Romer, 1986; Turnovsky, 1995). Yet the assumption of resource scarcity, and thereby, of competition, economic rationality, and optimization has been retained. Phelps (1989) emphatically explains that the methodology of neoclassical growth and resource allocation models is not adequate to address the question of social justice.

### ***7.13.2. Trade-off between social responsibility and economic growth (efficiency)***

The presence of public authority in the delivery of social services, including gender well-being, is ominously large in the United Nations approach to the delivery of social services. The result has been a number of debilitating effects for sustainability that is gained by participation and complementarities between economic and social possibilities of well-being to human beings and their holism.

First, the endogenous self-governing role of preference changes remains absent in the reformulation of the deontological attributes of individuals. Society is enforced by policies to command; it is not transformed by human consciousness as a self-governing lubricant of change. Take off the controls, society will revert to its rude forces. Contrarily, inject endogenous participation and learning to change, and then sustainable preferences toward continued consciousness will prevail. Of course, governments and public authority together with global governance ought to oversee the endogenously driven conscious transformation process toward sustainability by participation and extensive complementarities between the good things of life. This involves organic learning in all participants at different stages of society.

Second, no social transformation process is benign of political forces that remain embedded for good or for worse. Transferring increasingly more powers to deliver social services into government authority means to tighten the governance. This has proven to be detrimental to the grassroots participatory development process and to the free play of one's own ways of charting the self-governed future (Krugman, 1996). In many countries today, the strengthening of government authority, and one that arises from its authority over the delivery of social services, has suppressed dissenting groups in nations and communities as during the reign of global capitalism (Stiglitz, 2003).

Third, it is well known from the study of global political economy that, by vesting the power of social services on governments, such a development rule has freed the markets and businesses, individuals, and groups from social responsibility. The result is a trade-off of the type of neoclassical substitution between social responsibility vested on governments and economic growth and efficiency vested on the private sector including the attitude of household to this kind of consumerist preferences. In the end, the result is found to greatly help the industrialized economies, which have been able to make the private sectors of developing countries increasingly depend on the industrialized manufactures. The fallout was the debt burden syndrome of the developing countries (Ansari, 1986).<sup>7</sup>

#### ***7.14. The inadequacy of human development index and other indices in addressing the microeconomic ethical question***

At the level of quantitative measures too, we find that all the measures taken up in the name of economic growth, social justice, human development, etc. are aggregate in nature. They cannot and do not analyze the microeconomic dynamics that aggregate these complex fields of forces into the society-wide and economy-wide levels. The idea of aggregation of complex forces here leads into results on aggregations that are completely different from the Keynesian nature of aggregation in macroeconomics. Indeed, if morality, ethics, and values are to be transmitted to the macroeconomic level, then microlevel preferences for such choices must be embedded in the aggregate transformation. Macroeconomics will need the presence of the preferences of the ethical preceptor. Consequently, a microeconomic ethical groundwork of macroeconomics must evolve as a new theory of aggregation and choice from the microeconomic to the macroeconomic levels.

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<sup>7</sup> Statistics on economic gains in industrialized countries resulting from the production dichotomy in developing countries is staggering.

Most importantly, the present state of measurements by means of HDI and other development indices, such as human poverty index (HPI1, HPI2), gender development index (GDI), and gender empowerment index (GEM), does not explain the importance of interrelationship by inter-variable learning, hence interaction between the composite development variables and indices. Such a missing gap is otherwise a most important part of participatory development dynamics, which explain inter-sectoral, inter-variable, and ethical relations in socioeconomic development paradigm in a nonlinear and circular causal way of unified interrelationship.

Instead of the aggregate index of HDI in terms of similar aggregate indices of GDI, GEM, and HPI, these can be combined into a composite human well-being index by complementing them within a system of causal interrelationships. Such organic interrelationships and the evolutionary dynamics between the composite variables of the combined indices are then simulated by choice of the quantitative coefficients of the attenuating relations to attain better degrees of complementarities between the relevant variables of the composite index. This kind of change by discursive social choice requires understanding of the interactive nature of complementary relationships between the requisite variables. Interactions in the discursive milieu and between state and policy-variables of the problem under study lead into consensual selections. We term the interactive process of attaining consensus as interaction leading into integration. Furthermore, interactions lead into integration (or consensus) that subsequently leads to creative simulations. This last phase is represented by evolutionary learning into better social choices at the end of a process of systemic learning on the issues at hand. This methodology was explained in earlier chapters.

### ***7.15. A critique of Professor A.N. Whitehead's paradigm of relational ontology***

Professor A.N. Whitehead's relational ethical ontology that can be applied to explain the theme of intergenerational sharing and distribution of resources as common goods is an impressive precedent supporting the endogenous ethical theory developed in this work. Yet there is a problematic of methodology based on the moral and ethical high ground.

First, Professor Whitehead's ethical theory is not premised on moral theory. It is therefore rendered to rationalistic coloring with no uniqueness or universality beyond the fact that human society in relation to the cosmic totality is a relational domain. What then establishes the premise, substance, dynamics, and sustainability of this domain? What then arises from it as the global ethic? The answer to these questions requires the understanding of the knowledge–time–space dimensional (consciousness)

spanning of resource allocation across common goods as the good things of life. Let us say these are the Rawlsian primaries (Sen, 1989) and Fakhruddin Razi's *ubudiyya* goods mentioned earlier. In this dimensional spanning, the entities of the ethical relationships comprise the individual, society, the intergenerational knowledge–time–space span, and the evaluation of life-sustaining goods. The issue of cosmic ethical totality is then addressed by symbiotic embedding of all the above-mentioned entities to answer the ethical issues within a uniquely universal paradigm. Hence, the case of global ethics can then be made.

How much is to be saved for the future generation across the knowledge–time–space dimension in order for there to be fair distribution and thus delivery of the goods and resources to be commonly shared? Can an individual relate to the far-distant future with children who remain beyond his discursive possibility? If this is not possible, then the nature of their preferences, and thereby, the nature of goods, their quantities, and the markets that will price these goods of the far future remain unknown. In the absence of any such futuristic information, except for conjured alternatives fashioned by rationalistic reasoning, only uncertain attributes and contingencies can be assigned. Consequently, evaluation of such distantly future goods is futile and impossible. This domain of missing information is also like the incomplete market paradigm of Arrow (Feiwel, 1987) and Hammond (1987).

However, an individual can relate effectively with his overlapping generation of children and grandchildren to well determine all the missing information of the distantly removed generation of individuals. Such an interacting subsequent generation of individuals can form a relational, participatory, and discursive society. They can then well determine the common goods and resources and give form to the relational ontology for the purpose of social evaluation. A relational ethical social order and social contract comes into order.

Professor Whitehead's future generation is too distant away to be cosmically comprehensive in terms of all attributes, preferences, and contingencies. These evaluations are impossible. The metaphysics of past, present, and future span of history and civilization must be learnt by overlapping generations. Social evaluation of contracts can be done probabilistically at points "nearest" to the actual happening of events. This leads to the formal ontology of the forward-looking symbiotic embedding of the phenomenology of knowledge–time–space events in the form of a learning-type overlapping generation model (Choudhury, 2009b).

As individuals and their progressively generated social system, learning processes move onward by the formalism of interactive, integrative, and evolutionary character. This forms consciousness of ethical relations across simulated knowledge-flows. The individuals and society self-actualize by endogenous ethical forces. Ethical preferences become self-perpetuating. Now the knowledge-flows as carriers of relational ethics arise from the

foundational episteme of unity of knowledge. The discovery at the end is of global ethics.

### **7.16. Toward global ethics by way of the episteme of Islamic monotheism (Tawhid)**

Process-oriented understanding of ethical relations requires a precept of blending among the *Qur'anic* attributes. These attributes are namely, Mercy, Forgiveness, Love, Justice, Fairness, and Compassion.<sup>8</sup> The functional ontology of global ethics requires formalism that can activate the mentioned attributes in the social, economic, and scientific domains. Such a consequence is brought about by a complex system of circular causality between the divine attributes mentioned above, and applying them to Islamic socio-scientific thought and action. Furthermore, such circular causal *interrelationships* evolve through increasing consciousness according to the learning process in unity of knowledge. As explained earlier, the episteme of unity of knowledge is derived from the basis of Islamic monotheism in relation to the world-system. Here is where the *tasbih–shura* dynamics come into play. Now unity of the divine attributes translates into the relations of world-system in a consistent and congruent way. On this matter Imam Ghazali (Marmura, 1997, p. 96) wrote: “All these meanings reduce to His essence and His apprehension of His essence. His intellectual apprehension [of all this] and His intellectual apprehension of His essence are identical with His essence. For He is pure intellect. All, then, reduce to one meaning.”

In the attempt to establish circular causality between the divine attributes for organizing a moral socio-scientific order, recourse is made only to the circular causation between the variables and the knowledge-flows that correspond to the attributes. Thus, from the attribute of Mercy are further derived the attributes of Love, Justice, Fairness, and Compassion. Each of these attributes is circularly related and evolved by unity of knowledge premised on the precept of Islamic monotheism. The knowledge and blessing from divine Mercy increases with the progress of the *tasbih–shura* dynamics of learning into unity of divine knowledge.

For example, in the context of ethically embedded capital, goods, markets, and institutional processes, the above-mentioned attributes translate into recognition of the two factors that we have mentioned earlier. These are first, the market forces that abide in a systemic sense. Second, the market forces are combined simultaneously in the endogenous

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<sup>8</sup> These attributes comprise a subset of the complete vector of divine attributes referred to in the *Qur'an* as *Asma ul-Husna*.

sense with institutional presence of laws and rules governing transformation of world-system according to complementary and participatory relations in the light of monotheism and the world-system.

Therefore, while there are socioeconomic variables that are induced by the divine law (*tasbih*), there are also policies and instruments derived by discourse (*shura*) that govern transformation into desired levels of complementary and participatory states. Both of these sets of variables being induced by unity of knowledge are endogenous in nature. The resulting intrinsic, derived, and creatively evolved relations exist in perpetuity as learning processes gained in the knowledge–time–space dimension. All religions and peoples accept this cosmic form of unity of knowledge in “everything.” Thus, the oneness of the mentioned divine attributes working through the episteme of monotheism meld into the relational ontology of global ethics. This is the Islamic path toward the unity of humankind in the sense of relational ethical ontology taken up in the light of the moral law discarding rationalism.

### ***7.17. The global meaning of market in the context of endogenous relational theory of ethics***

Market in the ethical relational theory that is extended over knowledge–time–space dimension is a system of social contracts rather than a system of invisible exchange between buyers and sellers. In this way, the social contracts embed the individual within the social whole.<sup>9</sup> This embedding bestows ethical preferences in a learning milieu. The menus in demand and supply concur with the dynamic knowledge-induced preferences to cause ethical transformation and choices of goods and services and the exchange mechanism that takes place visibly.

Hence, the essential groundwork of the economic and finance system in the Islamic case represents the determination of ethical behavior influencing preference change and determination of price, value, and goods. In Islam, such a determination is said to serve not simply *shar'iah*-compliance. Rather, the objective is to meet the broadest objective of the *maqasid as-shari'ah*. The economy-wide meaning of aggregates implicates aggregation by complex microeconomic processes of inter-variable and inter-entity systemic relations. Thereby, at the end of learning processes there exist only endogenous variables, behavior, and relations. The only

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<sup>9</sup> *Qur'an* (62:9–10): O you who believe! When the call is proclaimed for the prayer (on Friday) come to the remembrance of *Allah* and leave off business. That is better for you if you did but know (9). Then when the prayer is ended, you may disperse through the land, and seek the bounty of *Allah*, and remember *Allah* much that you may be successful (10).

exogenous premise is the episteme of conscious oneness, *Tawhid*. This totality of knowledge defines “everything.”

The nature of relational ethical theory, now applied to the definition of market exchange, is indispensably a general equilibrium understanding of endogenously induced and interrelated system variables. The partial pictures of socioeconomic equilibrium or steady-state equilibrium are dispensed with. Consequently, the concept of the *maqasid as-shari’ah* becomes an evolutionary general-system equilibrium idea spanning markets and their complex knowledge-induced aggregation in social embedding. A separate macroeconomic aggregation as done in the Keynesian case is untenable.

Finally, the market system, and thereby, its complex aggregation at the level of economy, is a learning system. It accepts no optimality or steady-state equilibrium. The result is an abandonment of the axioms of resource scarcity, competition, economic rationality, and consistency axiom of consumer preferences. Information is always less than full because of the evolutionary epistemology of the exchange behavior. Yet, consumer and producer menus are forever in dynamic learning states. Consequently, marginal substitution postulates, utility, welfare, and production optimizations cannot exist. Likewise, opportunity cost of allocating scarce resources cannot exist, and relative prices of goods and services are not determined by such marginal rates of substitution in goods and services. A new paradigm of relational ontology now charts the simulation path of market exchange complemented with institutional and other socio-scientific embedding, generating socioeconomic aggregations. These arise from the microeconomic levels (Choudhury, 2000).

### 7.18. Conclusion

The nature of ethics stemming from the moral law as conscious oneness is endogenously relational, process-based phenomenon of consciousness. This theme comes near to Whitehead’s relational ontology of ethics. Yet there is a great divide. Whitehead’s relational ethics and his consequential idea of the common good and the attenuating social contract are of rationalistic origin. Contrarily, the episteme of consciousness arising from unity of divine knowledge (law) gives a unique and universal worldview on which all of mankind of good disposition believes. Thus, global ethics of the relational nature involving participatory engagement in the context of unity of mankind is to be found in the phenomenological methodology of unity of knowledge and its application. This is the worldview of *Tawhid* propounded by the *Qur’an* and the *Sunnah*.

Yet, while Whitehead discusses profoundly the relational and process-centered world-system of ethics, those gurus writing on the theme of Islamic economics and finance and the world-system are unaware of such a

great paradigm. The *Qur'an* and the *Sunnah* together taken up as the Islamic fundamental epistemology present the unified worldview of conscious oneness in unequivocal terms. But Muslims have missed this scholarship that stems from the universal worldview. Contrarily, much of Islamic economics, finance, science, and society have imitated the neoliberal paradigms to construct a perception without true Islamic foundation. This kind of Islamic scholarship now merely shines like the lurid moon glimmering in her borrowed light.

In this chapter, we have brought out this criticism contrarily to the great watershed of original thinking on *Tawhid* and the world-system that was contributed by the epistemological scholars of Islamic scholasticism. Islamic socio-scientific thinking and the true understanding of the *maqasid as-shari'ah* rest on the episteme of *Tawhid* and its discursive learning nature in the world that beckons to our wise use of the works of the great epistemologists (*mujtahids*).

Human relationship with *Allah*, the Pure One, must be understood, deciphered, and realized in our living experience. Our progress and actualization in life must be circularly bound by this relationship. This is the meaning of being endogenous observers in a conscious world of ethical relational ontology. The meaning is well expressed in lucid prose by Bruteau (1997, p. 179), though exception is made to the hidden pantheism underlying these words:

If you can see the God you love present in, even as, this world, then feel that union and rejoice in that. And be active in it, contribute to it, participate in the building, in the artwork, in the healing, in the understanding. This is where Reality is. You yourself are both a member of the Finite and a member of the Infinite ... .





# **EMPIRICAL AND APPLIED PERSPECTIVES**



## CHAPTER 8

# *Overlapping Generation Model for Islamic Asset Valuation: A Phenomenological Application*

The episteme of moral consciousness has its distinct phenomenological application in the real world of intellection, evidence, and application. This has been the theme of this book throughout. Along this direction of argumentation the universality and uniqueness of the episteme of conscious oneness was claimed to be applicable to the study and analysis of “everything.” Various applications of this episteme have been studied elsewhere by Choudhury, some of which have already been referenced in this book. These diverse areas are not reexamined here. Instead, the book now goes on to extend the epistemic application by functional ontology and its evidential proofs into new areas.

In this chapter we will formalize a conceptual model and application of Islamic asset valuation by using a form of the overlapping generation model that was mentioned in Chapter 7. We then study its consequences of rejecting and replacing the entire genre of discounting and time-value of money as being questionable practices in Islamic economics and finance. Consequently, the methods of present-valuation, opportunity cost of capital, internal rate of return, time-preference rate, cost–benefit analysis, and debt-financing are rejected as invalid Islamic financing instruments. Thereby, any indicator that is associated with the concept and computation of time-value of money as shadow rate of interest has been rejected and replaced by alternative ones that arise from the Islamic overlapping generation model of asset valuation. We show that our overlapping generation model and its socioscientific implications form a simulation system in the midst of circular causation of a learning system in unity of knowledge between the critical variables. This chapter establishes the theoretical framework to be followed up with empirical application in Chapter 9.

### 8.1. Objective

The arguments of this chapter that are set up against the prevailing Islamic economic and finance intellection and practice arise from the economic and methodological premises on behavior, markets, and institutional structure that together influence asset valuation. All these are bonded together to explain how methodology defines the domain of financial engineering in mainstream and Islamic perspectives. Mainstream financial engineering as a study of methods that stand upon the assumptions of behavior, markets, and institutions of the neo-classical vintage is critically examined. This is contrasted with the Islamic perspectives of the same issues that lay out an altogether different methodological worldview. Different forms of asset-valuation models emerge in these two cases. The Islamic premise of behavior, markets, and institutions is utilized against the backdrop of its most fundamental epistemology.

This fundamental epistemology is that of unity of knowledge (*Tawhid*). The contrary epistemological foundation of mainstream financial engineering is rationalism and rational economic, scientific, social, and institutional choices. Thus, the parting conceptions of financial engineering applied to asset valuation make the mainstream and Islamic approaches distinct and opposite to each other.

This chapter develops and investigates an overlapping generation asset-valuation model in the Islamic epistemological context while it examines the unacceptable nature of financial engineering ideas in the mainstream case. Financial engineering in both perspectives are analytically examined against their distinct epistemological worldviews.

### 8.2. Background

For quite some time now the method of valuation of assets in the light of *maqasid as-shari'ah* has remained elusive to economists and financial experts who principally work in the milieu of present-valuation and cost-benefit methodology. This group of Islamic economists and finance gurus argue that discounting is permissible if agreed upon between the lesser and lessee. Consequently, forward contract between buyers and sellers, and hence between Islamic banks and their clientele in drawing up a forward delivery contract, are priced at the present time with an uncertain delivery of goods and service at a future time. The financial instruments of *ijara* (rent or lease), *bay muajjal* (forward contracts), and *ad-dayn* (debt) are made to operate on this groundwork of a *fiqhi* understanding of forward contracts and their valuation (Khan and Mirakhor, 1989; Khan, 1996; Hayes and Vogel, 1998).

In this chapter we argue from the *shari'ah* and logical viewpoints that the above-mentioned argument has flawed reasoning. The existing

arguments in such cases become all the more untenable in the case of Islamic intertemporal asset valuation. The underlying intertemporal problem of time-value of money will thus be rejected and replaced by an alternative way by using a relevant model of Islamic asset valuation.

The empirical work accomplished in this chapter brings forth the viability of the proposed Islamic asset-valuation model in the light of the episteme of unity of knowledge as the unique and universal primal foundation of *maqasid as-shari'ah*. The empirical results will then be used to yield a new field of policy-theoretic implications in Chapter 9.

### 8.3. Arguments against the time-value of money

Future risk is not precisely known, even in the probabilistic sense, and hence it is not accurately computable. This is true both for risk measure that is statistically computed to yield the variance of risky return and for uncertainties that are studied by means of subjective probability measures. Time adds a further complication to the sample measures of risk and return. In econometrics the problem is reflected in what is known as heteroscedasticity and the problem of identification. But beyond sheer econometric problems the intertemporal measure of risk is conventionally reflected in the discount rate and the time-value of money. These are shadow rates standing for future interest rates. They exist in the absence of adequate contingencies for the state of the economy, information on markets for future goods and services, consumer preferences, and the characteristics of future goods and services. A complete estimation of risk and return cannot therefore be made at any projected point of time in the future.

According to Ayesha, the blessed wife of the Prophet Muhammad, *Allah* has not left the unseen (*ghayb*) to be known by anyone. Knowing *ghayb* is possible with *Allah* alone. Furthermore, an exegesis of the verses regarding the companions of the cave (*Kahf* in the *Qur'an*)<sup>1</sup> can be made in regard to the valuation of assets over time. The matching of the value of silver coins with goods at a time when the companions woke up from their long sleep implies that the value had to be exactly determined. Instead, if the time-value of money or discounting in valuation was permitted then the future value of a present coinage would have been either zero or

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<sup>1</sup> The timeless nature of valuation of money of itself and the valuation of money being linked to productive things can be extracted by exegesis of the following *Qur'anic* verse (18:19): "Likewise, We awakened them that they might question one another. A speaker from among them said: "How long have you stayed?" They said: "We have stayed a day or part of a day." They said: "Your Lord knows best how long you have stayed. So send one of you with the silver coin of your to the town, and let him find out which is the good lawful food, and bring some of that to you. And let him be careful and let no man know of it."

indefinitely large with the process of time until when the companions woke up. Neither of these cases would be useful for matching the value of goods at the positional time when the companions woke up. The companions of the cave are a Sign of *Allah* (*ayath Allah*) signifying the important relations that money establishes between itself, the exchangeable goods, and services, and determines its real value in terms of bullions (silver and gold), and thereby establishes true valuation at a “nearest” point of time of events involving the good things of life with security and true worth.

The Prophet Muhammad said that the price of fruits cannot be set before they are borne; the price of fish cannot be determined before it is landed into markets. There are several sayings of the Prophet Muhammad in respect to the interest-bearing (*riba*) nature of future exchanges upon using a predetermined price. The Prophet Muhammad declared that exchange of goods for similar goods (hence, services) is *riba* unless they are exchanged on the spot and without debasement. For instance, the monetary authority ought to safeguard national currency and monetary values. Failure to observe this principle of the *shari’ah* as national property right resulted in devaluation of the *fulus* – currency leading to hyperinflation during the time of the Mamluks (Allouche, 1994).

The protection of currency and monetary value in terms of gold and silver was the practice during the classical Islamic period. It became one of the important foundations of distributive equity in Imam Ghazali’s conception of money, currency, and real worth of the good things of life. Money as currency that was debased by corrupted shape and materials was assigned lesser market value.

If the risk is not fully known in the future, then the characteristics of the good are also not known. Hence, future goods are differentiated goods. Besides, since such differentiated goods remain undetermined in their characteristics, for example, the disappearance of many endangered species in the future, therefore, there is no market for such a good. Hence, no form of exchange mechanism can be ascertained. Finally, with the absence of such markets and either the disappearance of particular goods and services or the existence of only differentiated ones, the monetary relations at future time-points of valuation of goods and services cannot be fully determined. Consequently, particular kinds and volumes of resource to be mobilized by means of given kinds of financial instruments remain unknown.

Risk measurement must therefore be done at the proximity (“nearest” to) of a point of occurrence of an event by the use of conditional probability measures that depend on a previous sequence of learning in unity of knowledge between the selected variables. These variables that are of a complementary nature between the good things of life generate social well-being by degrees of simulated complementarities between them.

An exegesis of the verses regarding the companions of the cave (*Kahf* in the *Qur’an*) can be made in regard to the positional valuation of assets over time. The matching of the value of silver coins with goods at a point of

time when the companions woke up from their long sleep shows that the value had to be an exactly determined measure. Instead, if the time-value of money or discounting in valuation was permitted then the future value of a present coinage would have been either zero or indefinitely large with the process of time until when the companions woke up. Neither of these cases would be useful for matching the value of goods at the positional time when the companions woke up.

**8.4. Overlapping generation model to replace the time-discounting model of asset valuation**

A neo-classical overlapping generation model (internet version) is based on constrained intertemporal utility maximization of the following kind: Say a person lives for one time period, today and tomorrow. He works during this time period and bequeaths wealth through investment returns in the next period of time when he lives, consumes, and dies on the basis of sustaining by means of income and wealth, income earned today and wealth earned tomorrow, as if this was his retirement income from investment.

Thus, in the neo-classical sense of constrained utility maximization,  $U_1(c_{1t})$  is the first-period utility function based on that period consumption  $c_{1t}$ ;  $U_2(c_{2t})$  is the second-period utility function based on the future period consumption  $c_{2t}$ . The time period “ $t$ ” is shown to imply a generation of single time-period survivors. The life time utility function of such sequences of single time-period survivors is

$$U_t = U_1 + U_2 \tag{8.1}$$

The person’s income and wealth constraints are

$$w_t \geq c_{1t} + k_{1t} + b_{1t} \tag{8.2}$$

where  $w_t$  denotes first-period earned wages to cover consumption cost ( $c_{1t}$ ) plus capital ( $k_{1t}$ , house) and bonds ( $b_{1t}$ , financial assets).

$$c_{2t} \leq k_t(1 + r_{t+1}) + b_{1t}(1 + b_{t+1}) \tag{8.3}$$

The Lagrangian to be optimized is

$$L = U_t + \lambda_1(w_t - (c_{1t} + k_{1t} + b_{1t})) + \lambda_2(k_t(1 + r_{t+1}) + b_{1t}(1 + b_{t+1}) - c_{2t}) \tag{8.4}$$

In the intertemporal case (Arrow and Kurz, 1971), the alternative for expression (8.4) is

$$L(t) = \int_0^T U_t e^{-\delta t} dt + \int_0^T \lambda_{1t} L_1(t) e^{-\delta t} dt + \int_0^T \lambda_{2t} L_2(t) e^{-\delta t} dt \tag{8.5}$$

$$L_1(t) = (w_t - (c_t + k_t + b_t)); \quad L_2(t) = (k_t e^{rt} dt + b_t e^{b,t} - c_{2t} e^{gt})$$

$\delta$  denotes the discount rate over time;  $g$  is the rate of change of  $c_t$  over time.



In the case of overlapping generation resource allocation problem, particular attention is given to the bequeathal of one generational asset on to the subsequent generation. Thus, the problem as formalized in expressions (8.1)–(8.5) must show that overlapping sharing of resources is nonnull. That is

$$\cap_t \{w_t, c_{1t}, k_{1t}, b_{1t}\} \neq \phi \quad (8.6)$$

Consequently, connecting terms ought to be inserted in expression (8.5). This transforms the expression into the type

$$\begin{aligned} L(t) = & \int_0^T U_t e^{-\delta t} dt + \int_0^T \lambda_1 L_1(t) e^{-\delta t} dt + \int_0^T \lambda_2 L_2(t) e^{-\delta t} dt \\ & + \int_0^T \text{Cov}(L_1(t), L_2(t)) e^{-\delta t} dt \end{aligned} \quad (8.7)$$

All the variables shown in expression (8.7) are to be interpreted as statistical expectation values of variables.

Further complications arise as the intergenerational resource transfer spans interconnected contiguous generations. Expression (8.7) now assumes the more complicated form

$$\begin{aligned} L(t) = & \int_0^T U_t(U_1, U_2, \dots, U_n) e^{-\delta t} dt \\ & + \left[ \int_0^T \lambda_1 L_1(t) e^{-\delta t} dt + \int_0^T \lambda_2 L_2(t) e^{-\delta t} dt \right]_{\text{generation 1}} \\ & + \left[ \int_0^T \lambda_3 L_3(t) e^{-\delta t} dt + \int_0^T \lambda_4 L_4(t) e^{-\delta t} dt \right]_{\text{generation 2}} + \dots \\ & \left[ \int_0^T \lambda_{n-1} L_{n-1}(t) e^{-\delta t} dt + \int_0^T \lambda_n L_n(t) e^{-\delta t} dt \right]_{\text{generation } n} \\ & + \left[ \int_0^T \text{Cov}(L_1(t), L_2(t)) e^{-\delta t} dt \right]_{\text{generation 1}} \\ & + \left[ \int_0^T \text{Cov}(L_3(t), L_4(t)) e^{-\delta t} dt \right]_{\text{generation 2}} \\ & + \dots \left[ \int_0^T \text{Cov}(L_{n-1}(t), L_n(t)) e^{-\delta t} dt \right]_{\text{generation } n} \end{aligned} \quad (8.8)$$

Several points are implied by expression (8.8). First, across the “ $n$ ” number of generations there is discourse between surviving generations that can interrelate on the issue of resource transfer. Second, such a resource transfer occurs both forward and backward between generations. Third, future intergenerational discourse results cannot be predicted. They are based on dynamic preferences and contingencies occurring in the

future. Fourth, as a result of these implications it is impossible to determine discount factors as shown in expressions (8.5), (8.7), and (8.8). These expressions cannot, therefore, effectively explain intergenerational resource transfers in the real sense of endogenous preferences caused by learning.

Such neo-classical models are thereby insensitive to the ethical mores of cross-cultural epistemological issues that remain embedded in resource sharing intergenerationally. In the Islamic case of resource transfer, the *Qur'anic* law of inheritance and gifts and exchanges causes a complex mix of interrelations on transfers between parents, children, surviving wives, grandparents, and charitable wills as gifts. Besides, because such resource-flows link up with society at large, there are market-institutional interactions that remain embedded as ethical issues in the law of inheritance. They give rise to deep policy issues revolving around the *maqasid as-shari'ah*. An important issue here is the mobilization of inheritance received by the daughter into cooperative financing outlets jointly with family members or otherwise.

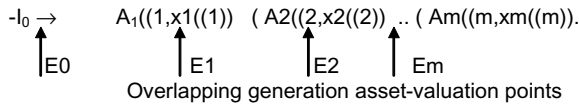
Once the discounting approach to asset and resource valuation is abandoned in the Islamic case, so also along with this, all categories of asset-valuation models must be summarily rejected. Among these kinds of financial indicators are present-valuation, internal rate of return, the LIBOR interbank interest rate comparison base presently being used by several Islamic financial outlets, and government bonds that many Islamic financial outlets and financial *fatawa* (*shari'ah* legal rules) are presently trying to legitimize as being *shari'ah*-compliant.

The overlapping intergenerational model of resource allocation of the neo-classical genre thus fails to be of any use in the case of the learning relations of interactive, integrative, and evolutionary type. A reformulation of such a model is needed in the light of the learning paradigm of unity of knowledge and its functional characteristics according to the interactive, integrative, and evolutionary process-oriented dynamics.

### ***8.5. Valuation by overlapping generation model in the Islamic case***

We refer here to [Figure 8.1](#), which delineates the above-mentioned process-oriented learning model of overlapping generation asset valuation. The finitely many discursive points indicated by  $E_1, E_2, \dots, E_m$  are those that we have referred to earlier as the “nearest” points of reading embedded economic, financial, and social contingencies and their effects on the returns from investments. Because the learning-process-oriented methodology in unity of knowledge, characterized by the IIE-phases of the learning process, involves market-institutional participation, therefore, each of the “nearest” points of evaluation of assets also represents the moments of participatory experience in the life cycle of evaluation of investment.

**Figure 8.1. Recursively generated knowledge-induced cash-flows in the overlapping generation valuation model**



In Figure 8.1, every process point  $P_i$  along the forward moving time-trends in asset values can be seen as an event reflecting two principal kinds of linkages. These are caused first by the intrinsic unity of systems with their entities (asset values) and the human discourse in the institution of the *shura* that examines and studies and infers from a formal understanding of the prevailing degree of unity in the systemic variables as socioeconomic ones. Thus, there are intrinsic unifying circular causal relations between socioeconomic variables pertaining to assets in the market venue and the institutional policy-variables that arise from the *shari'ah* investigation on realizing the linkages and objective formalism (functional ontology) caused by the interacting, integrating, and evolutionary (IIE) dynamic relations between the socioeconomic variables pertaining to the issue and systems under study. Such coterminous circular causation relations that exist over time and continuums of asset valuation present the experience of interactive, integrative, and evolutionary processes of learning between markets and institutions.

The net result of these kinds of *interrelationships* and their further evolution is caused by the simulation of  $\{\theta_t\}$ -knowledge-flows generated by the IIE-learning processes, consequently affecting the socioeconomic asset values, the  $\{x_t(\theta_t)\}$ -values. Thereby, we obtain the learning tuples,  $\{\theta_t, x_t(\theta_t)\}$ -values across IIE-processes. These tuples as vectors span the social well-being function (*al-maslaha wa al-istihsan*) as the objective criterion for simulation and evaluation of the socioeconomic variables in the light of their degrees of unifying linkages. This is the sign of unity of knowledge as it is established by pervasive complementarities between the elements of the vector tuples. Evolutionary values of  $W(\theta_t, x_t(\theta_t))$ , subject to the circular causation interrelations between the variables of the vector  $\{\theta_t, x_t(\theta_t)\}$  over IIE-processes and time- and knowledge-continuums, define the onward movement of asset values.

The degree of determinism of such “nearest” eventual values remains only probabilistically “near” to evaluation points along the life cycle of the asset. Each such valuation point is thus the result of interrelationships as explained above. The onward moving asset valuation under the impact of the IIE-learning processes of simulation, evolution occurring in concert with the systemic socioeconomic variables, and the discursive (*shuratic* from the word *shura*, which means consultation and the broader meaning of participation in the *Qur'an*) experience that impacts upon the

learning processes, establishes the overlapping generation valuation model (Geanakoplos, 1989; internet versions).

This is shown below. The knowledge-induced cash-flows  $\{A_t(\theta_t, \mathbf{x}_t(\theta_t))\}$  over time ( $t$ ) are shown in Figure 8.1.

At the time periods  $t_1, t_2, \dots, t_m$  there are the corresponding recursive interrelations between the  $(\theta, \mathbf{x}(\theta))$ -variables in the sense of knowledge-induced simulations. This method is explained below.

The recursive relations are indicated by learning regions around  $E_1, E_2, \dots, E_m$ . Clearly now, an infinite-term compounding is not applicable, because only finite-term decision-making is possible in the discursive (*shuratic*) process.

$$x'_t(\theta_t) = f(\theta_{t-1}, x_t(\theta_{t-1})) \tag{8.9}$$

Here  $x'_t(\theta_t)$  denotes the vector of all variables except the one that becomes the dependent variable at a period of time (i.e., around the given  $E_t$ 's) in the simulation system of recursive *interrelations*.

$$\{g(t - 1, x_t(t))\}_j \tag{8.10}$$

$$\{\lim_{j=1 \rightarrow m}(g(t - 1, x_t(t))\}_j \tag{8.11}$$

These expressions apply for all interaction  $j$  denoted by  $j = 1, 2, \dots, m$  within each time period  $t = 1, 2, \dots, n$ ; that is, around  $E_t$ 's.

### 8.6. Debt-equity swaps in the overlapping generation model

The overlapping generation valuation model can be used for debt-equity swap. In that case, let  $x_t(\theta_t) = \{D/K, g(K)/g(D), d\}[\theta_t]$ , where  $D$  denotes value of debt,  $K$  denotes capital formation generated by equity participation.  $g(K)$  and  $g(D)$  denote growth rates of capital linked with equity and debt, respectively. Take  $\theta_t$ -values to be consensually derived knowledge values over time and centered on directing foreign investment into debt-equity swaps through the doors of *musharakah*, joint ventures, re-*takaful* (reinsurance), and thereby, effectively replacing interest-based financing by profit-sharing. All these together bring about an Islamic transformation, which is the regime of  $\{\theta_{t1}, x_{t1}(\theta_{t-1})\}$ -values over time, and hence of attaining evolutionary simulated values of the well-being function,  $W()$ .

Every flow of foreign equity capital like  $I_0$  used in debt-equity swap yields a terminal value of cash-flows or asset valuation at time  $t$  equal to  $A_t(t, x_t(t))$ , which then accumulates by the equity profit-sharing rate until maturity of the debt-equity swap. All such values are determined and accumulated recursively from the previous cash-flows. These complementary interrelationships enter the well-being function

$$W(t, x_t(t)).$$

We now have the overlapping generation valuation model based on the simulated  $(t, x_t(t))$ -values. An appropriate selection of the  $x_t$ -vector is  $\{(K/D)$  ratio,  $(g(K)/g(D))$  ratio $\}$ . These two ratios are moved toward equality with each other by means of a discursive control of the parameter in the presence of limiting  $t_f$ -values. In this case as well, the parameter would be treated as a policy control variable.

The complete simulation of the overlapping generation valuation model is given by

$$\text{Simulate } \{\theta_t\} \quad W(\theta) = \sum_{t=1}^n [A_t(\theta_t, x_t(\theta_t))] - I_0 \quad (8.12)$$

with  $\theta$  denoting the sequence of consensual  $\theta_t$ -values over time, subject to the knowledge and time-dependent recursive interrelations shown in Equations (8.9)–(8.11).

With  $x_t(\theta_t) = \{D/K, g(K)/g(D), \delta\}$ , we would have the following kind of simulative knowledge-induction: As foreign investments ( $I(\theta)$ ) are directed into *musharakah* projects through *re-takaful*,  $(D/K)$  tends adaptively toward  $(g(K)/g(D))$  as  $\delta$  assumes a value near to unity when all of debt is swapped by a proportion of the foreign investment flow in joint venture and no interest remains hanging (for debt is retired). Simulative  $\theta_t$ -values appear from the discursive decision-making and polity–market processes by virtue of using ways and means of effectively mobilizing such foreign investments into *musharakah* projects and in sustaining complementary relations between debt reduction and equity swap, as an interest-based regime are progressively replaced by *musharakah* profit-sharing rates.

In this specific case of debt-equity swap the well-being objective criterion means the sum-total of all debt write-offs by the progressive upward movement of the  $\delta$ -ratios.

For the particular case where cash-flows denote compounded values of profit-sharing rates ( $r_t$ ) at every time period, we take  $x_t(\theta_t) = r_t(\theta_t)$ .

$$W(\theta_t) = \sum_{t=1}^n A_t(\theta_t, x_t(\theta_t)) = \sum_{t=1}^n \left[ A_t(\theta_t) \prod_{t=1}^n (1 + r_t(\theta_t))^t \right] - I_0 \quad (8.13)$$

If we assume deductions from the asset value over time, say,  $d_t$  at time  $t$ , the expression (8.5) takes the form

$$W(\theta) = \sum_{t=1}^n (1 - d_t) A_t(\theta_t, x_t(\theta_t)) = \sum_{t=1}^n \left[ (1 - d_t) A_t(\theta_t) \prod_{t=1}^n (1 + r_t(\theta_t))^t \right] - I_0 \quad (8.14)$$

The simulation of  $W$  is now subject to the complementary recursive relations

$$r_t = f_t(\theta_{t-1}, r_{t-1}) \quad (8.15)$$

where  $r_t$  itself can be an expected value of a system of rates of returns obtained from the debt-equity swap portfolio with different contingencies across diverse projects that may prevail. This part of the contingency-based averaging process is not shown.  $r_t$  would be better represented by geometric averaging than arithmetical averaging, because of the underlying term structure of the rates, subject to different contingencies and portfolios. All these factors are simulated under the assumption of nonlinear complexity caused by recursive knowledge-induction.

We also have the  $\theta$ -assignment problem as in the *shuratic* discursive process shown above by

$$\theta_t = \lim_{i=1 \rightarrow m} \{\theta_{ti}\} \tag{8.16}$$

Interaction at time  $t$  are denoted by  $i = 1, 2, \dots, m$  for  $t = 1, 2, \dots, n$ .

For several equity projects used in swapping debt with a sequence of foreign investments as joint venture without interest hang over,  $I_{ts}$  say,  $s = 1, 2, \dots, S$ ,  $t = 1, 2, \dots, n$ , starting and terminating at the same or different points in time in the future, the above valuation model would be a sinking fund of such foreign investment flows

$$\begin{aligned} W &= \sum_s \sum_t A_{ts}(\theta_{ts}, \mathbf{x}(\theta_{ts})) \\ &= \sum_s \sum_t \left[ A_{ts} \prod_{t=1}^n (1 + r_{ts})^t \right] [\theta_{ts}] - \sum_s \sum_t I_{ts}(\theta_{ts}) \end{aligned} \tag{8.17}$$

The complementary recursive relations are once again of the type

$$r_{js'} = f(\theta_{j-1,s}, r_{j-1,s}) \tag{8.18}$$

where  $r_{ts'}$  means the profit-sharing rate in a project that is cooperatively complemented with all other projects,  $s = 1, 2, \dots, S$ . Such joint ventures and *musharakah* projects would be multilateral projects in the Islamic community.

**8.7. Ethical endogeneity in the Islamic version of overlapping generation model**

Ethical endogeneity in the Islamic version of the overlapping generation model arises from learning in response to the interactive, integrative, and evolutionary (IIE) process of simulation by circular causation. This experience occurs at the nodes  $E_1, E_2, \dots, E_m$  “nearest” to the points of probabilistic occurrence of uncertain exigencies, as shown in Figure 8.1. The implications of *maqasid as-shari’ah* are invoked at such learning points, which are in fact continuous across the span of knowledge, time, and space dimension, in the following way:

*Tawhid* is the epistemic origin of knowledge that is implied in the essence of participation between diverse human and systemic entities in

the sense of interrelationships between markets and institutions. Together with this invocation of unity of knowledge as the epistemic origin of behavior, guidance, rules, and thinking along lines of the market-institutional interrelationships, and the choices of proper socioeconomic instruments are devised and derived from the epistemic reference that enables unity and participation to be realized in the learning system. This attainment of goals over time discursively requires principal and secondary participatory development-financing instruments and their diversities.

The following test of the proper choice would hold: First, unity of knowledge is reflected in the pervasively complementary and participatory nature of relational change that is derived in reference to the epistemic origin of conscious oneness. It is thereby brought into application by the choice of specific instruments. These are the cooperative instruments *mudarabah*, *musharakah*, and *murabaha* (MMM). These can be diversified by secondary instruments but in reference to the principal ones in the absence of *riba*. Second, the proper choice of goods are made that are not contrary to the good things of life (*hayat al-tayabbah*) mentioned in the *Qur'an*.<sup>2</sup> Third, the medium of determining such choices of instruments and baskets of goods and services is enlightened discourse (*shura*) that unravels the worshiping essence of systemic relations (*tasbih*). Fourth, the emanating simulation in respect to circular causation relations between variables and entities in the market-institutional IIE-learning processes in unity of knowledge takes place *res extensa*.<sup>3</sup>

Of all the mentioned conditions of the test, the principal one that establishes the functional ontological nature of unity of knowledge in the system sense of the general order of *maqasid as-shari'ah* is brought out by the principle of pervasive complementarities. It checks on the degree of unity of knowledge between the variables gained in the social well-being function. It then simulates the same system of relations for a better state of unity of knowledge reflected by better complementarities between the good things of life in the social well-being function. The social well-being function is thus simulated as a monotonic positive transformation function of knowledge-flows, subject to the system of circular causation relations between the selected variables.

The appendices show some such selected variables that will come into attention in the discourse mechanism and generate complementary interrelationships between them over discourses in time. The resulting onward progression of the overlapping generation Islamic asset-valuation

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<sup>2</sup> *Qur'an* (5:87).

<sup>3</sup> Fitzpatrick (2003, p. 128) writes, "Ours, then, is an age of simulations that endlessly refer only to other simulations. The infinite circularity of these self-references is what Baudrillard calls the *simulacra*: everything is a reproduction of other reproductions."

model is thus a continuous valuation by simulation at the nodes  $E_1, E_2, \dots, E_m$ . One such valuation is conducted in the real case of financial assets for Indonesian Islamic banks in Chapter 9.

### **8.8. Conclusion**

The overlapping generation asset-valuation model in the Islamic case is a substantive epistemologically rooted model and is altogether different from the overlapping generation model of neo-classical economic school. The Islamic overlapping generation model is sensitive to the episteme of conscious oneness. It thereby takes along with it the whole paradigm of the ethical moorings of *Tawhidi* worldview in concert with the world-system problems. The latter is characterized in this chapter in a methodological sense of Islamic asset valuation. Consequently, most of the usual kinds of asset-valuation implications, which have been borrowed by Islamic economists to fit into their understanding of *shari'ah*-compliance instead of *maqasid as-shari'ah*, have been replaced by appropriate Islamic development-financing instruments.

A new idea on Islamic asset valuation has thus been contributed. Chapter 9 is devoted to an empirical use of an aspect of the Islamic overlapping generation model to the real case concerning investments of Indonesian Islamic banks. The empirical exercise using circular causation relations is further extended to include real GDP variable to bring out the degree of linkage that Islamic investments have contributed to the real economy. This is an important criterion of extended learning relationship of Islamic money, finance, and the real economy in light of the principle of pervasive complementarities as synergetic interrelations vis-à-vis the systemic precept of conscious oneness.



**Appendix A: Complementary relations between selected variables of a discursive system of Islamic overlapping generation model of asset valuation**

An Example of Critical Complementary Relations between Socioeconomic and Policy-variables

**Equity Financing**

Unity of Knowledge in the *Shari'ah* [ $\Omega \rightarrow_F \{\Phi\} \rightarrow_{F'} \{\Phi^*\}$ ]

↓  
 Human resource development  
 Preference formation according to the *Shari'ah*  
 social trust on an enterprise & project  
 consumer satisfaction developed by participation and trust

( $\theta_{ikl}$ )

**Real Economy (System 1: P<sub>1</sub>)**

Spending in the real economy according to *Shari'ah* rules: resource Mobilization  
 ↓  
 productivity  
 product diversification  
 sustained economic growth  
 economic efficiency  
 economic stability

**Financial Sector (System 2: P<sub>2</sub>)**

appropriate joint venture, joint production menus  
 avoidance of speculation  
 risk-diversification  
 average cost reduction, stable returns to  
 shareholding  
 stakeholding

Interaction & Integration

( $\theta_{ikl}, \mathbf{x}_{ikl}(\theta_{ikl})$ ): Real Economy, P<sub>1</sub> ←→ ( $\theta_{ikl}, \mathbf{x}_{ikl}(\theta_{ikl})$ ): Financial Sector, P<sub>2</sub>

↓  
 Project Evaluation by the Social Wellbeing:  $W(\theta_{ikl}, \mathbf{x}_{ikl}(\theta_{ikl}))$ :  
 An example is the overlapping generation asset-valuation model

↓  
 Evolution into New[ $\theta_{ikl}$ ] by re-invoking [ $\Omega \rightarrow_F \{\Phi\} \rightarrow_{F'} \{\Phi^*\}$ ]

↓  
 continuity

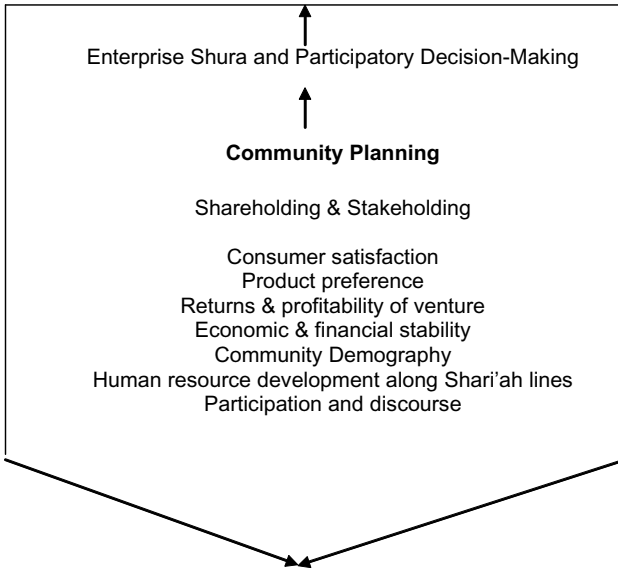
**Appendix B: Strategic interrelationships: enterprise, economy and community**

**Enterprise Planning**

**Economic Planning**

Portfolio Mix: Short, Medium & Long Run Projects and Project Financing

<u>Input</u>	<u>Output</u>	<u>Real Sector</u>	<u>Financial Sector</u>
Share-capital	profitability & returns	product and	risk-diversification
Financial instruments	buyers' preference	productivity	cost control
Project selection	& satisfaction	economic	stability
Socioeconomic	shareholding (equity)	efficiency	
Variables & relations	stakeholding (collective decision-making)	↓	



**Social Wellbeing with the joint preferences of**

Enterprise, Community and Economy



## *Pointwise Application of Circular Causation in the Islamic Valuation Model*

Along the policy-theoretic directions the central question to investigate from the formalism of the previous chapter and the empirical results of the present one on the quantitative consequences of circular causation is the method of studying pervasive complementarities between *mudarabah*, *musharakah*, *murabaha*, and other secondary variables (as per *maqasid as-shari'ah*). The objective of the estimation done followed by simulation of the regression coefficients is to bring about improvement in inter-variable complementarities. The above-mentioned selection of financial instruments takes effect in reference to human preferences, economic and financial goods, and services, modes of financing, institutional economic, and financial perspectives. These attributes work together in concert with ethical reasoning. Such an objective, goal, and perspective rely on the episteme of conscious oneness, which is made to play out its constructive role in the embedded Islamic political economy and world-system study that emanates from the organic learning and participatory nature of the total system (Boulding, 1971; Sen, 1985; Choudhury, 1998a).

While the analytical theorist hopes to gain from the above type of socio-scientific intellection, the policy-strategist can use the empirical results and more of such types to formalize the quantitative policy-theoretic basis of sound policy coordination interlinking the society, economy, and financial domains. In such embedding of the participatory learning system the role of scientific approach in the light of the episteme of conscious oneness is held paramount. This explanatory approach forms the functional ontological perspective of the application of *Tawhid*, the conscious systemic oneness, to specific issues and problems of the world-system.

As in the conceptual previous chapter so also in the present one, the learning content of the embedded and extended system to the real economy is estimated. The learning content of the embedded system points out the precept of unity of knowledge in it. This then suggests what needs to be done further to enhance the sustainability of unifying linkages between the economic, financial, and social world-system by way of improving the interrelations between the representative variables of these subsystems.

### 9.1. Estimation by circular causation relations and implications of the results

The raw data are tabulated as given in Table 9.1.

$\theta_1$ ,  $\theta_2$ ,  $\theta_3$  and thereby  $\theta$  at this level of quantitative work are rank assignments to the knowledge values in unity of knowledge reflected by the complementary experience between the variables. This latter rule for evaluation of conscious systemic oneness is derived from the foundational epistemology of unity of knowledge in the *Tawhidi* phenomenological model. There is no specific way of assigning such ranks for any range of ranks. The only criterion for assigning the ranks is to observe the trends in the socioeconomic variables in respect of their degrees of robust values comparatively within the columns of socioeconomic values first. The column  $\theta$ -ranks are then averaged across columns to generate the corresponding average  $\theta$ -rank.

We use the log-linear regression equations:

$$\begin{aligned}\ln V_1 &= a_0 + a_1 \ln V_2 + a_2 \ln V_3 + a_3 \ln \theta \\ \ln V_2 &= a_0 + a_1 \ln V_1 + a_2 \ln V_3 + a_3 \ln \theta \\ \ln V_3 &= a_0 + a_1 \ln V_1 + a_2 \ln V_2 + a_3 \ln \theta \\ \ln \theta &= a_0 + a_1 \ln V_1 + a_2 \ln V_2 + a_3 \ln V_3\end{aligned}$$

### 9.2. Regression analysis: $\ln V_1$ versus $\ln V_2$ , $\ln V_3$ , $\ln \theta$

The regression equation is

$$\ln V_1 = -13.0 + 0.445 \ln V_2 + 1.40 \ln V_3 + 4.77 \ln \theta \quad (9.1)$$

Predictor	Coefficient	SE	T	P
Constant	-13.028	8.904	-1.46	0.217
$\ln \% V_2$	0.445	0.195	2.29	0.084
$\ln \% V_3$	1.402	1.750	0.80	0.468
$\ln \theta$	4.766	0.733	6.50	0.003

$S = 0.285160$ ;  $R^2 = 93.6\%$ ;  $R^2(\text{adj}) = 88.7\%$ .

Durbin-Watson statistic = 2.00272.

The generic relationship for  $V_1$  in terms of the other variables is

$$V_1 = e^{-13.0} \cdot (V_2)^{0.445} \cdot (V_3)^{1.40} \cdot \theta^{4.77} \quad (9.2)$$

The estimated coefficients suggest the following results:  $V_1$  being positively related with  $V_2$  with an elasticity coefficient of 0.445, indicates that total financing of Islamic banks depend on principal shareholders' capital represented by paid-in capital to total financing ratio. It is thereby noted that a 1% increase in  $V_2$  causes 0.445% increase in  $V_1$ . This percentage increase in  $V_1$  is not large and would be declining as indicated by the data on  $V_2$ .

**Table 9.1. Financing data of Islamic banks in Indonesia**

Million Rupiah	$V_1$ (%)	$V_2$ (%)	$V_3$ (%)	$\theta_1$	$\theta_2$	$\theta_3$	Avg. $\theta = \theta$
2,049,793	6.13	25.54	113.48	2.00	5.00	5.30	4.10
3,276,650	59.85	15.98	112.30	8.00	6.00	5.30	7.10
5,530,167	68.77	11.31	96.60	9.00	7.00	7.00	7.67
11,489,933	107.77	6.37	96.86	10.0	8.00	7.20	8.40
15,231,942	32.57	6.24	97.75	6.00	8.30	7.50	7.26
20,444,907	34.22	4.85	98.90	6.50	9.00	8.00	7.83
26,888,136	31.51	3.78	95.99	5.50	9.50	6.50	7.16
37,680,587	40.13	3.01	112.25	6.75	10.0	5.30	7.35

Source: Islamic Banking Directorate, Bank Indonesia, Jakarta, Indonesia, 2008; Bank Syariah Mandiri, Jakarta, Indonesia, 2007; Bank Muamalat, Jakarta, Indonesia, 2008.

$V_1$ : percentage change in total financing;  $V_2$ : paid-in capital (shareholders financing) as ratio of total financing (%);  $V_3$ : (finance/deposit)-ratio (FDR) percentage; Avg.  $\theta = (\theta_1 + \theta_2 + \theta_3)/3$ .

Subsequently, a 1% increase in  $V_3$  causes a 1.40% increase in  $V_1$ , which is an impressive rate being in excess of 1% change. Consequently, even as paid-in capital is expected to play a decreasing role in augmenting  $V_1$ , yet the contribution of depositors' funds will substitute for this decrease. Islamic banks would then become more self-reliant in the near future.

$V_1$  is significantly positively related to the learning index denoted by  $\theta$ -values. This shows that proper direction of complementarities between the variables exist in sustaining the investment climate and self-reliance of Islamic banks.

What is worrisome though is that  $V_1$  shows negative elasticity with the estimated technological coefficient of expression (9.1), that is  $-13.0$ . This coefficient needs to be sufficiently improved to yield a positive elasticity coefficient in order to sustain the apparent healthy relationship between  $V_1$ ,  $V_2$ ,  $V_3$ , and  $\theta$ . We will therefore treat this revision as our simulation exercise using Spatial Domain Analysis (SDA-method) of Geographical Information System (GIS).

**9.3. Regression analysis:  $\ln V_2$  versus  $\ln V_1$ ,  $\ln V_3$ ,  $\ln \theta$**

The regression equation is

$$\ln V_2 = 18.6 + 1.27 \ln V_1 - 1.65 \ln V_3 - 6.99 \ln \theta \tag{9.3}$$

Predictor	Coefficient	SE	$T$	$P$
Constant	18.60	16.18	1.15	0.314
$\ln \% V_1$	1.274	0.557	2.29	0.084
$\ln \% V_3$	-1.645	3.081	-0.53	0.622
$\ln \theta$	-6.988	2.363	-2.96	0.042

$S = 0.482378$ ;  $R^2 = 75.5\%$ ;  $R^2(\text{adj}) = 57.1\%$ .  
Durbin-Watson statistic = 1.60445.

The generic form of the estimated equation is

$$V_2 = e^{18.6} \cdot V_1^{1.27} \cdot V_3^{-1.65} \cdot \theta^{-6.99} \quad (9.4)$$

The sign of the coefficient of  $V_1$  regressed on  $V_2$  suggests that at this time there is a continuing enhancement of shareholders' portion of total Islamic bank investments on increasing trend in these variables. In other words, shareholders' returns from Islamic bank investments plus other motivational factors are found to impact positively upon the continuation of shareholders' financing of Islamic bank investments. The relationship is significant: a 1% increase in  $V_1$  causes an enhancement impact of 1.24% on  $V_2$ . If such a condition of interdependence between  $V_1$  and  $V_2$  continues, then Islamic banks will shy away from relying on general depositors' funds to finance investments. This is indicated in the above estimated relationship by a 1.65% decline in  $V_2$  for a unit increase in FDR and vice versa. This is a significant value of the elasticity coefficient, indicating that  $V_2$  and  $V_3$  move oppositely within the vicinity of 90% for FDR as prescribed by the Shari'ah Directorate of Bank Indonesia for maintaining a healthy liquidity safety valve for Islamic banks while promoting FDR as the indicator of self-sufficiency of financing total investments of Islamic banks.

The negative elasticity coefficient of  $V_2$  to the systemic learning parameter  $\theta$  is acceptable, for such a result is desired indicating the self-sufficiency that paid-in capital, representing shareholders financing ratio, should give way to increasing depositors' mobilization of financing denoted by increasing FDR, though remaining in the vicinity of 90%.

Overall therefore, the estimated equation suggests that while  $V_2$  is being enhanced in relation to increasing  $V_1$ , yet this is occurring in an environment of FDR replacing paid-in capital. All these are acceptable signs of continued sustainability for Islamic banks in the near future. The simulation exercise in such a case would be to target the range,  $90\% \leq \text{FDR} \leq 100\%$ . That is, the simulated elasticity coefficient of  $V_3$  will be between  $-1.65$  and  $-0.5$ .

#### 9.4. Regression analysis: $\ln V_3$ versus $\ln V_1$ , $\ln V_2$ , $\ln \theta$

The regression equation is

$$\ln V_3 = 5.60 + 0.099 \ln V_1 - 0.0404 \ln V_2 - 0.641 \ln \theta \quad (9.5)$$

Predictor	Coefficient	SE	T	P
Constant	5.603	0.845	6.63	0.003
$\ln\% V_1$	0.099	0.123	0.80	0.468
$\ln\% V_2$	-0.040	0.076	-0.53	0.622
$\ln \theta$	-0.642	0.578	-1.11	0.330

$S = 0.0756280$ ;  $R^2 = 44.8\%$ ;  $R^2(\text{adj}) = 3.4\%$ .

Durbin-Watson statistic = 2.49040.

The generic estimated relationship is

$$V_3 = e^{5.60} \cdot V_1^{0.099} \cdot V_2^{0.0404} \cdot \theta^{-0.641} \tag{9.6}$$

The signs of the estimated coefficients indicate results that are consistent with the previous ones. That is increasing  $V_1$  enhances depositors' confidence, causing thereby enhancement impact on FDR. But in as far as FDR is to be controlled in the vicinity of 90% and paid-in capital should be declining in relation to FDR, there is a problem in so meeting the required regulatory direction of the Shari'ah Directorate of Islamic Banks in Bank Indonesia. Consequently, the learning experience in the appropriate ( $V_1, V_2, V_3$ ) values is still weak.

The simulated coefficient in this case would be to generate a negative relationship between  $V_2$  and  $V_3$ , as between  $-1.65$  and  $-0.5$ . Consequently, the learning coefficient should be maintained, say between  $1.00$  and  $1.5$ , respectively.

**9.5. Regression analysis:  $\ln\theta$  versus  $\ln V_1, \ln V_2, \ln V_3$**

The regression equation is

$$\ln\theta = 3.15 + 0.192 \ln V_1 - 0.0982 \ln V_2 - 0.367 \ln V_3 \tag{9.7}$$

Predictor	Coefficient	SE Coefficient	T	P
Constant	3.145	1.556	2.02	0.113
$\ln\% V_1$	0.192	0.029	6.50	0.003
$\ln\% V_2$	-0.098	0.033	-2.96	0.042
$\ln\% V_3$	-0.367	0.332	-1.11	0.330

$S = 0.0571831$ ;  $R^2 = 96.2\%$ ;  $R^2(\text{adj}) = 93.4\%$ .

Durbin-Watson statistic = 2.24375.

The generic estimated equation for the well-being index ( $\theta$ ) is

$$\theta = e^{3.15} \cdot V_1^{0.192} \cdot V_2^{-0.0982} \cdot V_3^{-0.367} \tag{9.8}$$

The coefficients are consistent with the aforementioned results in the case of the estimated equations. Besides, the undesired negative coefficient of  $V_3$  in relation to the expected negative sign of the coefficient of  $V_2$  in the learning system circular causation between ( $V_1, V_2, V_3$ ) suggests that Islamic bank financing still depends much on shareholders' capital. This is indicated by the FDR-value that is found to be incompatible with the regulatory target of 90% suggested by the Shari'ah Directorate of Bank Indonesia.

The simulation case in summary, while avoiding all other suggested simulation possibilities that can be taken up in the estimated circular causation model system is this. The social objective would be to simulate



the following well-being index of learning for the indicated coefficients ( $\alpha < 0, \beta > 0$ ). The result then is

$$\ln\theta = 3.15 + 0.192 \ln V_1 - \alpha \ln V_2 + \beta \ln V_3 \quad (9.9)$$

where

$$\alpha \in (-1.65, -0.50); \quad \beta \in (1, 1.50)$$

The method of SDA is used to generate simulation contours to show the possible coefficient fields against which several interactive simulated scenarios can be studied and the policy, strategic, and institutional implications of such transformation can be derived. The appendices give these results.

### 9.6. Extended circular causation financing results

In this section we introduce the real GDP variable and perform the same kind of circular causation regression as shown above. The results are once again interesting. The principal results obtained are as expected: Well-being is positively related with the rate of change in Real GDP (RGDP). But the FDR ratio is shown to be negatively related with RGDP. This is because of the inverse of FDR (deposit/finance ratio) as data were used. Besides, the nominal values instead of the rate of change in the independent variables were used. The negative sign of the coefficient of this variable in relation to RGDP is thus expected to point out the enhancing effect between FDR and RGDP. Debt/asset ratio is not expected to establish positive sign with RGDP and the financing variables. This too is proven by the regression results in the circular causation relations.

But there are problems in Islamic financing relations with the economy as revealed by the estimated equations: Islamic banks show a good deal of reliance on debt/asset ratio to make the financing variable relate positively with RGDP.

Besides, the estimated  $\theta$ -values in the three cases simulated here do not give consistent coefficients in relation to the other variables. Particularly, the positive relationship between  $\theta$ -values and  $V_1$ -variable is questionable. This result points out no extensive Islamic financing relations with the economy as a whole. A better result remains to be reconstructed.

### 9.7. Summary of the extended circular causation regression results

#### 9.7.1. Regression Analysis: $\ln V_1$ versus $\ln V_2, \ln V_3, \ln V_4$ ( $\ln \text{RGDP}$ ) all Other Variables were Defined Earlier

In the circular causation one of the regression equations is

$$\ln V_1 = -32.9 + 1.23 \ln V_2 - 1.05 \ln V_3 + 7.96 \ln V_4 \quad (9.10)$$

Predictor	Coefficient	SE	T	P
Constant	-32.86	10.38	-3.16	0.051

$\ln V_2$	1.230	0.976	1.26	0.297
$\ln V_3$	-1.052	9.435	-0.11	0.918
$\ln V_4$	7.965	1.242	6.41	0.008

$S = 0.283174$ ;  $R^2 = 97.5\%$ ;  $R^2(\text{adj}) = 95.0\%$ .  
 Durbin-Watson statistic = 2.97184.

**9.7.2. Regression Analysis:  $\ln V_2$  versus  $\ln V_1, \ln V_3, \ln V_4$**

The regression equation is

$$\ln V_2 = 4.5 + 0.281 \ln V_1 + 6.48 \ln V_3 - 1.90 \ln V_4 \tag{9.11}$$

Predictor	Coefficient	SE	$T$	$P$
Constant	4.500	10.01	0.45	0.683
$\ln V_1$	0.282	0.223	1.26	0.297
$\ln V_3$	6.479	2.543	2.55	0.084
$\ln V_4$	-1.898	1.998	-0.95	0.412

$S = 0.135470$ ;  $R^2 = 97.5\%$ ;  $R^2(\text{adj}) = 94.9\%$ .  
 Durbin-Watson statistic = 2.99166.

**9.7.3. Regression Analysis:  $\ln V_3$  versus  $\ln V_1, \ln V_2, \ln V_4$**

The regression equation is

$$\ln V_3 = 0.56 - 0.0039 \ln V_1 + 0.106 \ln V_2 - 0.015 \ln V_4 \tag{9.12}$$

Predictor	Coefficient	SE	$T$	$P$
Constant	0.560	1.280	0.44	0.691
$\ln V_1$	-0.003	0.035	-0.11	0.918
$\ln V_2$	0.106	0.041	2.55	0.084
$\ln V_4$	-0.016	0.2907	-0.05	0.961

$S = 0.0172914$ ;  $R^2 = 95.9\%$ ;  $R^2(\text{adj}) = 91.9\%$ .  
 Durbin-Watson statistic = 2.86749.

**9.7.4. Regression Analysis:  $\ln V_4$  versus  $\ln V_1, \ln V_2, \ln V_3$**

The regression equation is

$$\ln V_4 = 4.38 + 0.117 \ln V_1 - 0.122 \ln V_2 - 0.06 \ln V_3 \tag{9.13}$$

Predictor	Coefficient	SE	$T$	$P$
Constant	4.384	0.683	6.42	0.008
$\ln V_1$	0.117	0.018	6.41	0.008
$\ln V_2$	-0.122	0.128	-0.95	0.412
$\ln V_3$	-0.061	1.145	-0.05	0.961

$S = 0.0343233$ ;  $R^2 = 94.7\%$ ;  $R^2(\text{adj}) = 89.4\%$ .  
 Durbin-Watson statistic = 2.74995.

**9.7.5. Regression Analysis:  $\ln\theta_1$  versus  $\ln V_1, \ln V_2, \ln V_3, \ln V_4$** 

The regression equation is

$$\ln\theta_1 = -7.83 + 0.0589 \ln V_1 - 0.083 \ln V_2 - 2.92 \ln V_3 + 1.19 \ln V_4 \quad (9.14)$$

Predictor	Coefficient	SE Coefficient	<i>T</i>	<i>P</i>
Constant	-7.831	3.665	-2.14	0.166
$\ln V_1$	0.058	0.097	0.60	0.608
$\ln V_2$	-0.083	0.204	-0.40	0.725
$\ln V_3$	-2.925	1.602	-1.83	0.209
$\ln V_4$	1.186	0.807	1.47	0.279

$S = 0.0479854$ ;  $R^2 = 98.5\%$ ;  $R^2(\text{adj}) = 95.4\%$ .

Durbin-Watson statistic = 1.91551.

**9.7.6. Regression Analysis:  $\ln\theta_2$  versus  $\ln V_1, \ln V_2, \ln V_3, \ln V_4$** 

The regression equation is

$$\ln\theta_2 = -11.5 - 0.051 \ln V_1 - 0.334 \ln V_2 + 2.18 \ln V_3 + 1.84 \ln V_4 \quad (9.15)$$

Predictor	Coefficient	SE Coefficient	<i>T</i>	<i>P</i>
Constant	-11.453	6.575	-1.74	0.224
$\ln V_1$	-0.051	0.176	-0.29	0.798
$\ln V_2$	-0.334	0.367	-0.91	0.458
$\ln V_3$	2.184	2.874	0.76	0.527
$\ln V_4$	1.842	1.448	1.27	0.331

$S = 0.0860888$ ;  $R^2 = 89.7\%$ ;  $R^2(\text{adj}) = 69.1\%$ .

Durbin-Watson statistic = 3.01029.

**9.7.7. Regression Analysis:  $\ln\theta_3$  versus  $\ln V_1, \ln V_2, \ln V_3, \ln V_4$** 

The regression equation is

$$\ln\theta_3 = -5.74 - 0.0674 \ln V_1 - 0.406 \ln V_2 + 2.79 \ln V_3 + 1.10 \ln V_4 \quad (9.16)$$

Predictor	Coefficient	SE	<i>T</i>	<i>P</i>
Constant	-5.744	2.790	-2.06	0.176
$\ln V_1$	-0.067	0.075	-0.90	0.461
$\ln V_2$	-0.406	0.156	-2.61	0.121
$\ln V_3$	2.788	1.220	2.29	0.150
$\ln V_4$	1.104	0.614	1.80	0.214

$S = 0.0365248$ ;  $R^2 = 97.0\%$ ;  $R^2(\text{adj}) = 90.9\%$ .

Durbin-Watson statistic = 3.01478.

### 9.8. Policy conclusion

Estimation results of the circular causation relations point out that Islamic banks in Indonesia studied in this chapter rely much on large shareholders capital as opposed to raising deposits for financing projects from individuals, households, and businesses. Besides, instead of promoting joint ventures by interbank networking on capital needs, Islamic banks still rely on interbank borrowing that stands for (debt/asset)-ratio variable in our study. Consequently, any contribution that Islamic banks make to the real economy in Indonesia is via the route of these mentioned modes of financing. Islamic banks in Indonesia ought to contribute to these needed areas of financing.

At the present time, a new financial architecture is much needed for the economic and financial world to stabilize growth, development, and financial markets. Islamic banks along with the stewardship of Bank Indonesia Shari'ah Department should put great attention on developing money and real economy linkages based on 100% reserve requirements monetary system with the gold standard (Choudhury, 1997a,c, 2008a; Yaeger, 1997; Mundell, 2000). This technical topic will be taken up in some detail later on in this book.

A possible easy way for Islamic banks to initiate a money and real economy complementary linkage is to finance capital and human resource development linked with projects at the grassroots in which the public at large, businesses, and governments would hold shares of every denomination, so as not to restrict such financing to large shareholders alone. Such shares will revolve around Islamic modes of financing in which the project-assets at the grassroots will be the basis of asset-backing, while the modes of financing in which share values are mobilized, will revolve around the Islamic development-financing instruments.

A most important of these financing instruments is that of trade financing. By virtue of its risk-free and profitable returns in the short-run, trade financing instrument will promote tradability of the produce of grassroots enterprises. The share value will thus be raised through trade-financing instruments.

Furthermore, to realize production and risk diversifications in such project financing and by raising share-capital in a broad-based way, Islamic banks will network their efforts and financing in this direction of joint ventures. The theory of economy of scope suggests that joint production menus have lower cost of production than differentiated production menus.<sup>1</sup>

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<sup>1</sup> Economy of Scope Indicator,  $SC = [C_1(Q_1) + C_2(Q_2) - C(Q_1, Q_2)]/[C(Q_1, Q_2)] > 0$ , where  $C$ 's denote the costs of production of outputs  $Q_1$ ,  $Q_2$  and the joint output  $(Q_1, Q_2)$ . The corresponding joint production function is  $Q = F(Q_1, Q_2)$ . In the presence of economy of scope  $Q_1$  and  $Q_2$  jointly feed into each other, causing complementarities between them. Such

Therefore, a conscious way of reorganizing the role of Islamic banks in the money–finance–real economy transformation is to emphasize the participatory perspective of development. It is equally important to pursue this goal along dynamic basic-needs regimes of development, which are sustainable and stable states of an economy that complement the real sector, finance, and monetary sectors. The production cost is reduced, and thereby, the joint output is expanded, as the number of shareholders increase along with the number of production outlets.<sup>2</sup> Such a strategy prescription should be the goal of Islamic banks in grassroots development to raise share-capital from the public at large and with extensive financial networking as the sign of pervasive complementarities.

**Technical Appendix A: SDA simulation of SPSS results on well-being index**

$$\ln \theta = 3.15 + 0.192 \ln \% V_1 - \alpha \ln \% V_2 + \beta \ln \% V_3 \quad (\text{A9.1})$$

The differently shaded lines joining  $\theta$  with the shaded areas of  $V_1$ ,  $V_2$ , and  $V_3$  denote different values of the simulated coefficients  $\alpha$  and  $\beta$  that can be assumed. These values are shown in the table to the left-hand side. Only the coefficients of  $V_2$  and  $V_3$  are simulated in this way. The coefficient of  $V_1$  remains unchanged at 0.192.

Each choice of such coefficient in the shaded areas shown in [Figure 9.1](#) connecting the well-being parameter  $\theta$  has a policy and systemic cost for implementing the policy, strategy, and underlying instruments. For instance, the most interactive values of the coefficients for  $V_2$  would be in the range  $(-0.178, 0.112)$ . Thereby, it would be possible to realize an increase of 0.178 in  $\theta$  by a decrease of 1% in  $V_2$ . According to the estimated regression, such a movement in  $V_2$  suggests that the paid-in capital as an indication of the degree of dependence on shareholders' capital is fast decreasing. Consequently, self-reliance through increasing depositors' financing ( $FDR = V_3$ ) is being enhanced. The case of  $\alpha = -0.178$  may be the more plausible one to maintain a balance between shareholders financing and depositors financing.

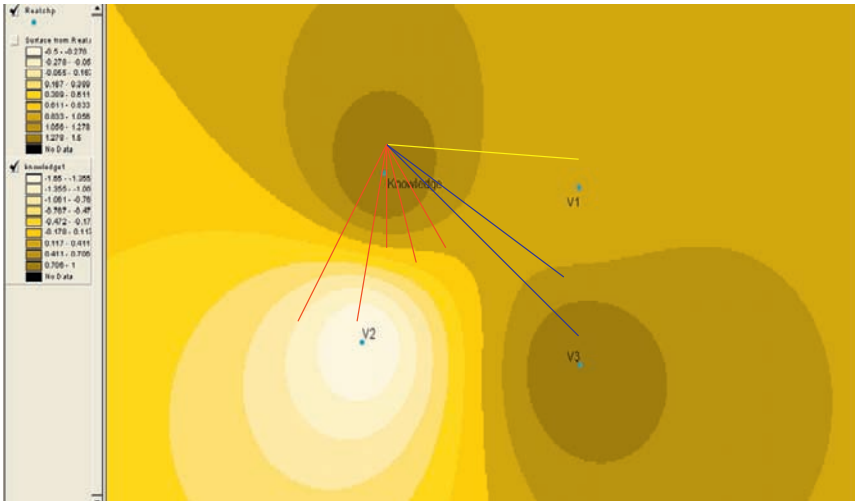
For the case of the coefficient of  $V_3$  the most interactive distribution of coefficient values of  $V_3$  with  $\theta$  is in the range  $(0.117, 0.411)$ . This too is a sound value, because shareholders financing and depositors financing are

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complementarities require especial attention to participatory modes of production, financing, technology, and factor market resource mobilization. Thus the existence of economy of scope is causally linked with pervasive complementarities between all elements of the productive cycle.

<sup>2</sup>  $\text{Var}(Q) = \text{Var}[F(Q_1, Q_2)]$ .

**Figure 9.1.** Interaction levels of variables  $V_1$ ,  $V_2$ , and  $V_3$  against knowledge level when the value of  $\alpha$  is simulated around  $-1.65$  and the value of  $\beta$  is simulated around  $1$



complementing the total financing, and thereby contributing to the well-being index of  $\theta$ .

Such simulations result in the following simulated well-being index:

$$\theta = e^{3.15} \cdot V_1^{0.192} \cdot V_2^{-0.178} \cdot V_3^{0.117} \tag{A9.2}$$

This is a better representation of the needed complementarities for sustaining a self-reliant development of Islamic banks, compared to the results obtained for the estimated form, that is:

$$\theta = e^{3.15} \cdot V_1^{0.192} \cdot V_2^{-0.0982} \cdot V_3^{-0.367} \tag{A9.3}$$

$$\ln \theta = 3.15 + 0.192 \ln V_1 - \alpha \cdot \ln V_2 + \beta \ln V_3 \tag{A9.4}$$

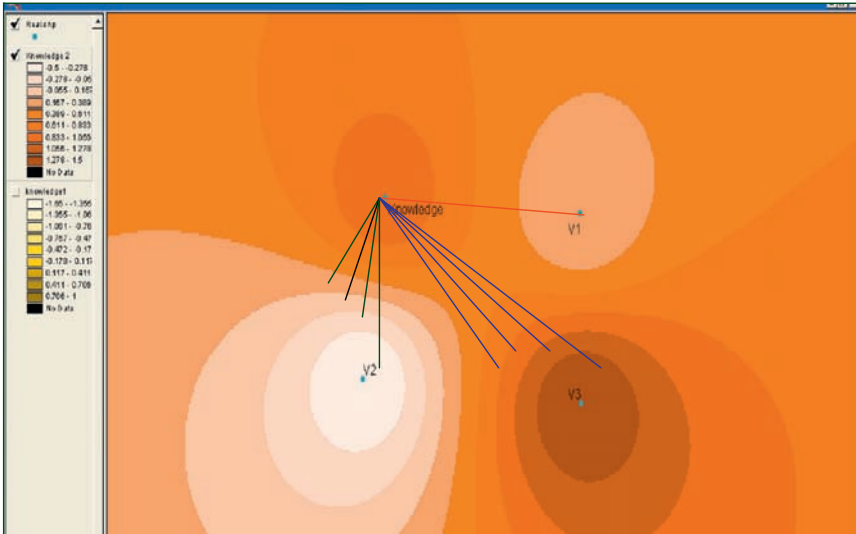
The explanation of Figure 9.2 is similar to that of Figure 9.1. The desired well-being index takes the form

$$\theta = e^{3.15} \cdot V_1^{0.192} \cdot V_2^{(-0.278, -0.05)} \cdot V_3^{(0.389, 0.611)} \tag{A9.5}$$

compared to the estimated form (A9.3).

On comparison between all estimated forms, namely (A9.2) and the simulated form (A9.3), we find the simulated form (A9.5) to be the best one in establishing healthy complementarities in the system to yield a heightened degree of self-reliance by depositors financing, while by the same effect, the reliance on shareholders' capital declines sharply.

**Figure 9.2.** Interaction levels of variables  $V_1$ ,  $V_2$ , and  $V_3$  against knowledge level when the value of  $\alpha$  is considered as  $-0.50$  and the value of  $\beta$  is  $1.50$



In each of these cases we note the positive estimated value of the “constant” coefficient. This implies that learning is taking place along the positive shift of the well-being index as a result of participatory learning along the pointwise motion of valuation of assets in the intertemporal version of the Islamic overlapping generation model.

An important policy-theoretic implication of the SDA-simulations that lead to choices of policies, strategies, and changes in the intertemporal process evolution of the asset-evaluation points is this. Decision makers can choose such variables out of learnt discourses and observed participation that can be explained in the normative and positivistic ways in policy analysis. That is, normatively the policy-maker in the Islamic banking system invokes the epistemology of unity of knowledge. In a positivistic way, circular causation estimation leading to simulation reconstructions, help in attaining levels of well-being that signifies constructive change according to the epistemology of unity of knowledge.

In all of these reconstructions, followed by explanation and application, no predetermined predictive and theoretical exactness is required. Such experiences are all gained in the learning process. Such an evolutionary method of simulation by learning in the policy-theoretic case is similar to McCloskey’s (1985) idea of “rhetoric of economics.” It is also similar to Ernest Mach and Werner Heisenberg’s theories pointing out the scientific difficulties of measurement due to the impossibility of exactness in

statistical prediction. Despite all these new dimensions of the normative and positivistic worldview of unity of knowledge in the pointwise circular evaluation in the asset valuation according to Islamic overlapping generation model, the pervasive learning in unity of knowledge must prevail in continuum of knowledge–time–space dimension to make simulative learning possible.

**Appendix B: Statistical Data**

**Table A9.1.** Financing data of Islamic banks in Indonesia, 1921–1927 (est)

$V_1 = m_1 + m_2 + m_3 + Is$	$V_2 = \text{debt/asset}$	$V_3 = \text{deposit/finance}$	$V_4 = \text{RGDP}$	$\theta_1$	$\theta_2$	$\theta_3$
781,916	0.007	0.8904	723.5	4.63	4	10
5,352,016	0.0358	1.0352	748.9	3	3	7
11,286,331	0.0319	1.0324	779.6	3.25	3.5	7.5
14,791,142	0.0429	1.0838	817.8	3.13	3.6	7.8
19,358,162	0.0327	1.0111	863.6	4.26	3.8	7.6
26,888,136	0.0258	1.0024	911.1	4.88	3.9	8
28,377,232	0.0246	0.9974	966.7	5	5	9

$m_1$ , mudarabah;  $m_2$ , musharakah;  $m_3$ , murabaha; Is, Istisna

1. Debt Islamic banks (total)

- 2001: Rp 244.00 milyar (US\$ 2.71 million)
- 2002: Rp 275.00 milyar (US\$ 30.55 million)
- 2003: Rp 507.00 milyar (US\$ 56.33 million)
- 2004: Rp 539.00 milyar (US\$ 59.88 million)
- 2005: Rp 419.00 milyar (US\$ 46.55 million)
- 2006: Rp 1191.3 milyar (US\$ 132.36 million)

2. Equity Islamic banks (total)

- 2001: Rp 538.00 milyar (US\$ 59.77 million)
- 2002: Rp 1100.00 milyar (US\$ 122.22 million)
- 2003: Rp 727.00 milyar (US\$ 80.77 million)
- 2004: Rp 981.00 milyar (US\$ 109 million)
- 2005: Rp 1344.00 milyar (US\$ 149.33 million)
- 2006: Rp 1642.00 milyar (US\$ 182.44 million)

Debt/Equity ratio:  $\delta$

- 0.0453
- 0.2500
- 0.6974
- 0.5494
- 0.3117
- 0.7255

3. Real GDP

- 2000: US\$ 165.57 billion
- 2001: US\$ 164.52 billion
- 2002: US\$ 194.93 billion
- 2003: US\$ 237.33 billion
- 2004: US\$ 256.68 billion
- 2005: US\$ 289.48 billion
- 2006: US\$ 369.28 billion



Table A9.1. (Continued)

$V_1 = m_1 + m_2 + m_3 + Is$	$V_2 = \text{debt/asset}$	$V_3 = \text{deposit/finance}$	$V_4 = \text{RGDP}$	$\theta_1$	$\theta_2$	$\theta_3$
<b>4. Investment by Islamic banks (total)</b>						
2001: Rp 2050.00 milyar (US\$ 227.77 million)						
2002: Rp 3277.00 milyar (US\$ 364.11 million)						
2003: Rp 5530.00 milyar (US\$ 614.44 million)						
2004: Rp 11324.00 milyar (US\$ 1,258.00 million)						
2005: Rp 15232.00 milyar (US\$ 1,692.00 million)						
2006: Rp 20444.00 milyar (US\$ 2,271.00 million)						
<b>Investment by Islamic banks by types of financing</b>						
<b>Musharakah</b>			<b>Musharakah/ Total investment</b>			
2001: Rp 54.00 milyar (US\$ 6.00 million)			0.0263			
2002: Rp 60.00 milyar (US\$ 6.66 million)			0.0183			
2003: Rp 306.00 milyar (US\$ 34.00 million)			0.0553			
2004: Rp 1165.00 milyar (US\$ 129.44 million)			0.1029			
2005: Rp 3124.00 milyar (US\$ 347.11 million)			0.2051			
2006: Rp 2334.00 milyar (US\$ 259.33 million)			0.1142			
<b>Mudarabah</b>			<b>Mudarabah/ Total investment</b>			
2001: Rp 403.00 milyar (US\$ 44.77 million)			0.1966			
2002: Rp 499.00 milyar (US\$ 55.44 million)			0.1523			
2003: Rp 794.00 milyar (US\$ 88.22 million)			0.1436			
2004: Rp 1961.00 milyar (US\$ 217.88 million)			0.1732			
2005: Rp 1898.00 milyar (US\$ 210.88 million)			0.1246			
2006: Rp 4062.00 milyar (US\$ 451.33 million)			0.1987			
<b>Murabaha</b>			<b>Murabaha/Total investment</b>			
2001: Rp 1420.00 milyar (US\$ 157.77 million)			0.6927			
2002: Rp 2324.00 milyar (US\$ 258.22 million)			0.7092			
2003: Rp 3956.00 milyar (US\$ 439.55 million)			0.7154			
2004: Rp 7478.00 milyar (US\$ 830.88 million)			0.6605			
2005: Rp 9487.00 milyar (US\$ 1,054.00 billion)			0.6229			
2006: Rp 12.624 milyar (US\$ 1,402.00 billion)			0.6173			
<b>Istisna</b>			<b>Istisna/Total investment</b>			
2001: Rp 168.00 milyar (US\$ 18.6 million)			0.0817			
2002: Rp 221.00 milyar (US\$ 24.5 million)			0.0673			
2003: Rp 296.00 milyar (US\$ 32.8 million)			0.0534			
2004: Rp 313.00 milyar (US\$ 34.7 million)			0.0276			
2005: Rp 282.00 milyar (US\$ 31.3 million)			0.0185			
2006: Rp 338.00 milyar (US\$ 37.5 million)			0.0165			

**Table A9.1. (Continued)**

$V_1 = m_1 + m_2 + m_3 + Is$	$V_2 = \text{debt/asset}$	$V_3 = \text{deposit/finance}$	$V_4 = \text{RGDP}$	$\theta_1$	$\theta_2$	$\theta_3$
Investment by Islamic bank by types of sector				Ratio of total investment		
2005						
Agriculture and Forestry: Rp 687, 281 milyar (US\$ 76,3 million)				0.0451		
Mining: Rp 395 milyar (US\$ 43,89 million)				0.0259		
Manufacturing: Rp 933 milyar (US\$ 10,39 million)				0.0061		
Water, gas, and electricity: Rp 66,08 milyar (US\$ 7,3 million)				0.0043		
Construction: Rp 1,548 trilyun (US\$ 172,016 million)				0.1017		
Hotel and trade: Rp 1,715 trilyun (US\$ 190,64 million)				0.1127		
Transport and cargo: Rp 1,261 trilyun (US\$ 140,13 million)				0.0828		
Business and social services: Rp 5,712 trilyun (US\$ 634,6 million)				0.3751		
2006						
Agriculture and Forestry: Rp 701 milyar (US\$ 77,89 million)				0.0343		
Mining: Rp 374,5 milyar (US\$ 41,6 million)				0.0183		
Manufacturing: Rp 939,7 milyar (US\$ 104,4 million)				0.0459		
Water and Electricity: Rp 17 milyar (US\$ 1,9 million)				0.0008		
Construction: Rp 1,637 trilyun (US\$ 181,88 million)				0.0801		
Hotel and trade: Rp 3,041 trilyun (US\$ 337,89 million)				0.1488		
Transport and cargo: Rp 1,165 trilyun (US\$ 129,4 million)				0.0570		
Business and social services: Rp 6,193 trilyun (US\$ 688,1 million)				0.3030		

Source: Bank Indonesia (2004).  
Exchange rate: 1 USD = Rp 9000.00.



## *Circular Causation Relations Using Malaysian Data on Money and Real GDP*

This chapter further demonstrates the empirical validity of the impact of endogenous learning in circular causation system of equations. Our example in the present case is of the interrelations that the learning denoted by  $\theta$ -variable generates in the system of circular causation equations. In this Islamic epistemic sense, the expectation on the direction of interrelations is that the following kinds of complementary interrelations will exist between the critical variables: Increased circulation of money represented by  $M_1$  would stabilize prices, rather than igniting inflation as in mainstream macroeconomics. This situation will generate noninflationary economic growth denoted by the rate of change in real GDP. Price stabilization at a noninflationary level will occur at lower interest rate and higher net export. Overarching all these variables, there is the learning  $\theta$ -variable that will complement the other economic variables through a simulation exercise revising the positivistic estimation results that may not all show the above-mentioned expected complementary relationships between the variables.

To make the data amenable to regression analysis, we note the equations that follow. The whole model system is estimated both according to existing data and then simulated for desired revisions of the predictors. This revision is done by simulating the regression coefficients in the light of the principle of complementarities between the variables as prescribed by the law of unity of knowledge in the Islamic worldview. The result then would be the simulation of the well-being index pertaining to the economic interrelations in the circular causation model system, so signifying the principle of complementarities and, thereby, the learned application of the episteme of unity of knowledge in the problem under study. The well-being index as an ethical index is expressed by the relationship of  $\theta$ -variable to the simulated relationship between the socioeconomic variables.

We assume that there is a decision-making body (e.g., *shura*) that assigns  $\theta$ -ordinal values by examining the prevalent and desired levels of complementarities between the variables. The *shura* thus treats this kind of appropriate knowledge-induced socioeconomic variables as the sign of well-being premised in unity of knowledge.

### 10.1. The circular causation relations

The circular causation regression equations are as follows in their positivistic (estimated) and normative (simulated) forms:

#### 1. Positivistic analysis: prevalent socioeconomic case

$$\ln x_i = a_I + \sum b_j^* \ln x_j + c_i^*(\ln(\text{AVG}\theta_i)) \quad i \neq j = 1, 2, 3, 4 \quad (10.1)–(10.4)$$

$$\ln \theta = A_I + \sum B_j^* \ln x_j \quad (10.5)$$

Once the estimation is done, we can obtain the predictor values for the variables of the regression system including  $\ln \theta$ -values.

#### 2. Normative analysis: epistemologically induced simulated case

In this part of the empirical work, we change the estimated  $B_f$ -values by simulation, which is to assign desired values to these regression coefficients in light of the signs of the coefficients in the estimated Equations (10.1)–(10.5). We are looking for less-negative or possible positive values according to the resource possibility for attaining certain levels of the desired unity of knowledge (suitable complementarities). This kind of assignment of the regression coefficients is explained by the regression coefficients as elasticity coefficients. The intervariable relational elasticity coefficients are denoted by  $\eta_{i,j}(\theta) = d \ln x_i / d \ln x_j = (dx_i(\theta)/d\theta) / (dx_j(\theta)/d\theta)$  since the normative values are  $\theta$ -induced by simulation and by prevalent  $\theta$ -values in the positivistic case.

Negative  $\eta_{i,j}(\theta)$ -values denote marginal rates of substitution except when they denote the replacement of “bads.” There cannot be substitution between “goods” in an endogenously knowledge-induced Islamic socioeconomic order. Likewise, the *shari’ah* avoidance of “bads” does not legitimate the acceptance of a quantity of one bad by another bad, negating marginal rate of substitution in such a case and in the case of goods related with goods. Thus, the *shari’ah* principle is that a good cannot be traded off with a bad; a bad cannot be traded off with a bad; and a good cannot be traded off with a good.

Optimization of the well-being function would be endemic in the existence of negative sign between alternatives arising out of the core

axiom of resource scarcity in economics. Indeed, this consequence is universal in Occidental science that relies on the praxis of social Darwinism. Such a situation does not allow for learning by organic relationships that yield positive or lesser negative signs of the simulated values in appropriate socioeconomic cases facing socioeconomic possibilities for reorganization into complementary relationships between the variables. Positive or lesser negative values of the elasticity coefficients signify a process toward socioeconomic learning leading into complementarities between the selected variables. This result points out increasing social transformation into organic unity of knowledge by complementarities between the good possibilities in the system of selected variables in the light of the *shari'ah*. The epistemic idea of the *Tawhidi* genre is thus invoked in actual socio-scientific problems.

Finally, in the simulated circular causation system of relations, assignment of the simulated regression coefficients results in new predictor values of the socioeconomic variables in the presence of learning with assigned  $\theta$ -values. Such new predictor values are calculated by means of the Equations (10.1)–(10.5) and are plotted in their comparative positivistic and normative forms.

### ***10.2. Regression analysis of the circular causation system***

The rationale underlying the choice of variables and the specification of the equations are as follows: In every case, the coefficients of the log-linear forms are invoked for analysis, interpretation, and reconstruction by simulation, keeping in view the requirement of organic unity between the good things of life as a cardinal principle of the *shari'ah* and the worldly manifestation of unity of the divine law. The divine law of conscious oneness is *Tawhid* and its relationship with the world-system in respect of the problem of complementarities explained by circular causation. Note that the implication of unity of knowledge according to the worldview of conscious oneness is framed in the domain of organic unity between the socio-scientific variables and their endogenous relations, and between their representative agencies vis-à-vis their endogenous interrelations.

By an extension of macroeconomic theory and its microeconomic ramifications in Islamic economics, it can be argued that money circulation depends on the  $M_1$  kind of monetary stock.  $M_1$  conveys the best effect on spending as resource circulation in the economy. Thus, the ratio  $M_1/M_3$  (with  $M_3$  as the total monetary stock) should have positive relationship with international trade (TRADE). Besides, spending and money circulation are related with lower and phased-out real interest rates according to the income and money multiplier models that are based on the catalysis of money circulation. Spending and money circulation are

also negatively related to bank savings as withdrawal from the income multiplier effect.<sup>1</sup>

When the relationship between  $M = (M_1/M_3)$  and TRADE is recursively positive in the circular causation relations, such relations would imply resource leakage and loss of income multipliers. Likewise it is the case when the relationships between  $M$  and real interest rate (IN%), recursively taken, are negative. Also negative relationships between TRADE and IN% examined recursively are unacceptable in the normative perspective of the *shari'ah*. The estimated negative relationship can be due to the influence of real interest rate on the  $M_1$ -money function. The implication of the negative relation is that interest rate lessens the growth of  $M_1$ -monetary stock relative to the  $M_3$ -monetary stock.

The ethical index, or equivalently the well-being index based on the calculated rank estimation of  $\theta$ -variable, ought to reveal the correct signs of the estimated coefficients in each of the circular causation estimated equations.

The estimated equations show perverse relationships between  $M$  and TRADE, INT and TRADE, and IN and  $M$  recursively in the circular causation estimation according to the *shari'ah* principles. The measure of the incidence of leakages caused by the perverse relationships between these variables is measured by the signs and magnitudes of the elasticity

<sup>1</sup> The Islamic income multiplier depends intrinsically on the knowledge-value  $\theta$  derived from the epistemology of unity of knowledge.  $\theta$ -value induces all the variables in the organic relations of unity of knowledge and the knowledge-induced variables. Thereby, the income ( $Y$ ) multiplier resulting from spending ( $Sp$ ) in the good things of life as induced by the Islamic law (*shari'ah*) shows that  $dY(\theta)/dSp(\theta) = [dY(\theta)/d\theta]/[dSp(\theta)/d\theta] = [df_1(\theta, Sp)/d\theta]/[df_2(\theta, Y(\theta))/d\theta]$ , by virtue of the circular causation between  $Y(\theta)$  and  $Sp(\theta)$  through  $\theta$ -values in the functions  $f_1(\cdot)$  and  $f_2(\cdot)$ . For simplicity, we will take  $f_1$  and  $f_2$  as linear in their respective variables.

$Sp(\theta) = p(\theta) \cdot Y(\theta)$ . Thereby,  $dSp(\theta)/d\theta = Y(\theta) \cdot (dp(\theta)/d\theta) + p(\theta) \cdot [dY(\theta)/d\theta]$ . This expression is identically positive by the individual terms under the impact of the learning  $\theta$ -variable. Also any monotonic positive transformation of  $Sp(\theta)$ , like  $f(\theta, Sp(\theta))$ , is positively increasing under the impact of  $\theta$ -values.

Finally,  $dY(\theta)/dSp(\theta) = [df_1(\theta, Sp)/d\theta]/[df_2(\theta, Y(\theta))/d\theta] = Y(\theta)/(dY(\theta)) \cdot (dp(\theta)/d\theta) + p(\theta) = p(\theta)(1 + 1/\varepsilon(\theta))$ . The income multiplier expression for Islamic economic case is  $dY(\theta)/dSp(\theta) = p(\theta)(1 - 1/\varepsilon(\theta))$ , assuming linearity of  $f_1$  and  $f_2$ . This expression points out that there are progressively rising prices driven by  $\theta$ -values along *dynamic* basic needs regimes of development with *almost* perfectly elastic demand and supply curves meeting each other at evolutionary equilibrium points.

The convergent common demand and supply elasticity coefficients are shown by the sequence  $\{\varepsilon(\theta) = -[(dY(\theta)/d\theta)/Y(\theta)]/[(dp(\theta)/d\theta)/p(\theta)] \rightarrow \text{high value though not } \infty \text{ because of the presence of the permanently learning } \theta\text{-induction on highly elastic demand and supply functions in dynamic basic needs regimes of development.}$

coefficients as follows:

(Percentage change in  $M$ ) caused by a (unit percentage change in TRADE) =  $-0.176$ .

(Percentage change in  $M$ ) caused by a (unit percentage change in IN) =  $0.244$ .

(Percentage change in IN) caused by a (unit percentage change in  $M$ ) =  $2.27$ .

(Percentage change in TRADE) caused by a (unit percentage change in  $M$ ) =  $-1.63$

(10.6)

### 10.3. Economic inference from the estimated results

The economic inference we derive from the above result is that the Malaysian economy is a progressive one in terms of its well-being index. However, to further improve on this ethical perspective and reduce the leakages caused by real interest rate and withdrawal of potential spending from productive spending, policy directions and conscious learning are needed to transform the economy along lines of an interest-free and productive economic system. In order to attain a semblance of such a social reconstruction, policy simulations are done where aberrant relations are discovered. The comparative paths of evolution of the predictors in the actual state, and the simulated state of the economy, are shown. Also shown are the comparative well-being or the trajectories of the ethical index in the actual and simulated cases following policy and institutional changes that would underlie social reconstruction. Such a progressive social reconstruction is indicated by increasing degrees of complementarities between the appropriate *shari'ah* implicated variables and replacement of the unwanted ones. The latter case is found in the relationships between IN%,  $M$ , and TRADE variables.

### 10.4. Simulation of the regression results by the use of spatial domain analysis

Spatial Domain Analysis (SDA) simulates the estimated values of the regression coefficients by assigning them a range of values out of the region of numbers estimated by the SDA method. From the domain of possible values calculated by the SDA method, admissible values of the regression coefficients are selected. These represent the *shari'ah*-recommended relationships between the variables as they ought to be. The coefficient signs resulting from the choice of such appropriate values imply gaining



degrees of complementarities or replacement of the corresponding variables according to the normative *shari'ah* implications in the light of organic unity of knowledge.

The simulated coefficients so obtained explain the elasticity results shown in Equation (10.6). Thus, policy objectives and resource possibilities at any given point of time determine the choice of the SDA-numerical values from the range of simulated values in accordance with *shari'ah* perspectives regarding the relationships between the variables as they ought to exist. This *shari'ah* perspective of simulation toward social reconstruction involves institutional discourse relating to the choice of simulated coefficient values in reference to the target goals of well-being.

In the end, the objective of the participants within interactive and consensual institutional decision-making is guided by the goal of attaining the well-being criterion of unity of knowledge. The existing levels of unity of knowledge in the relational circular causation system are explained by the progressive levels of complementarities between the variables in the light of their appropriateness according to the *shari'ah* directions on choices and possibilities. In our specific case, the well-being criterion can be represented by the  $\theta$ -index. This is the ethical index and is measured in both positivistic and normative cases by the  $\log(\theta)$ -equations.

The SDA results chart the simulated values of various coefficients associated with the variables (in natural logarithmic terms) across graded region of colors shown below. The simulated coefficient values simulated by the SDA method are those that are selected from the intervariable relations that are measured in the colored variation within the SDA regions. The range of coefficient values for different colored regions is provided in the tables next to the SDA diagrams shown below.

### ***10.5. Final results: from positivism to normative social reconstruction by simulated learning***

The final results appear as comparisons between the estimated and the simulated time-paths of the interrelated variables. Included in these is the time-path of movement of the two cases of  $\theta$ -values over time. The time-path represents the evolution of the ethical index. This evolution is primarily the function of consciousness. Consciousness is primordially intrinsic to creation as a whole. It is extracted by the efforts of intellect and institutions through discourse performed by understanding the inner dynamics of relational orders. The values of the ordinalized  $\theta$ -variable representing knowledge-flows are recorded against the corresponding average way of understanding the *shari'ah* relationship between the socioeconomic (hence socio-scientific) variables in specific problems under investigation. The  $\theta$ -variable is a ranked measure of consciousness that is

extracted by human effort from the intrinsic domain of world-system in respect of specific issues and problems. Thus, such consciousness alone creates knowledge-induced evolution, unlike mainstream sciences that treat time as the underlying dynamics of evolution. Time merely reads the evolutionary  $\theta$ -values and the corresponding organic relationships between socio-scientific variables.

The estimated and predictor values of the economic variables are obtained by the following equations.

### 10.5.1. Estimated equations

$$(1) \quad \ln \theta = -0.514 + 0.792 \ln M - 0.244 \ln IN + 0.123 \ln TRADE \quad (10.7)$$

$$(2) \quad \ln TRADE = 6.53 - 1.63 \ln M - 0.022 \ln IN + 1.57 \ln \theta \quad (10.8)$$

$$(3) \quad \ln M = 1.20 + 0.244 \ln IN - 0.176 \ln TRADE + 1.09 \ln \theta \quad (10.9)$$

$$(4) \quad \ln IN = 1.32 + 2.27 \ln M - 0.022 \ln TRADE - 3.11 \ln \theta \quad (10.10)$$

Simulated equations (using the SDA-numerical choices for selected coefficients)

$$(2') \quad \ln TRADE = 6.53 - 1.417 \ln M - 0.022 \ln IN + 1.57 \ln \theta \quad (10.8')$$

$$(3') \quad \ln M = 1.20 + 0.103 \ln IN - 0.103 \ln TRADE + 1.09 \ln \theta \quad (10.9')$$

$$(4') \quad \ln IN = 1.32 + 1.672 \ln M - 0.022 \ln TRADE - 3.11 \ln \theta \quad (10.10')$$

$$(5) \quad \ln \theta = -0.514 + 0.792 \ln M - 0.244 \ln IN + 0.123 \ln TRADE \quad (10.7')$$

Tables 10.1 and 10.2 give the estimated and simulated values, respectively, for all the variables over the time period 1990–2008 for Malaysia. These values are charted in Figures 10.1–10.4.

## 10.6. Regression analysis

### 10.6.1. Regression analysis: $\ln M \times 100$ , $\ln IN\%$ , $\ln TRADE \times 100$ , $\ln \theta$

1. *Regression Analysis:  $\ln M$  versus  $\ln IN$ ,  $\ln TRADE$ ,  $\ln \theta$*

The regression equation is

$$\ln M = 1.20 + 0.244 \ln IN - 0.176 \ln TRADE + 1.09 \ln \theta \quad (10.11)$$

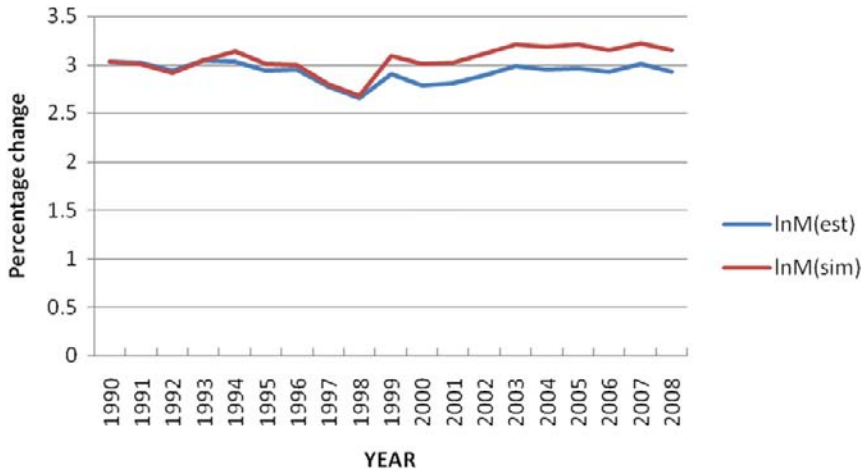
**Table 10.1. Estimated values of the variables and the ethical index  $\theta$** 

YEAR	$\ln M$	$\ln IN$	$\ln Trade$	$\ln \theta$
1990	3.028729	2.281141	4.474355	1.89087
1991	3.016001	2.271952	4.493234	1.838109
1992	2.934276	2.435738	4.436823	1.77571
1993	3.04094	2.249392	4.480648	1.903995
1994	3.034887	1.741766	4.756527	2.047363
1995	2.937106	1.93596	4.695302	1.927509
1996	2.952987	1.958982	4.698482	1.84772
1997	2.769532	2.219091	4.626825	1.735273
1998	2.657149	2.162338	4.742497	1.577921
1999	2.902974	1.17243	5.151269	2.01929
2000	2.785608	1.304155	5.083616	2.103191
2001	2.809719	1.332004	5.067209	2.085399
2002	2.892835	1.137896	5.149293	2.123856
2003	2.987651	0.967619	5.214237	2.159127
2004	2.949029	0.951494	5.223702	2.184113
2005	2.959712	0.895367	5.249401	2.198976
2006	2.928511	1.111181	5.130819	2.168849
2007	3.000422	1.10347	5.097477	2.222949
2008	2.921725	1.169502	5.081687	2.218552

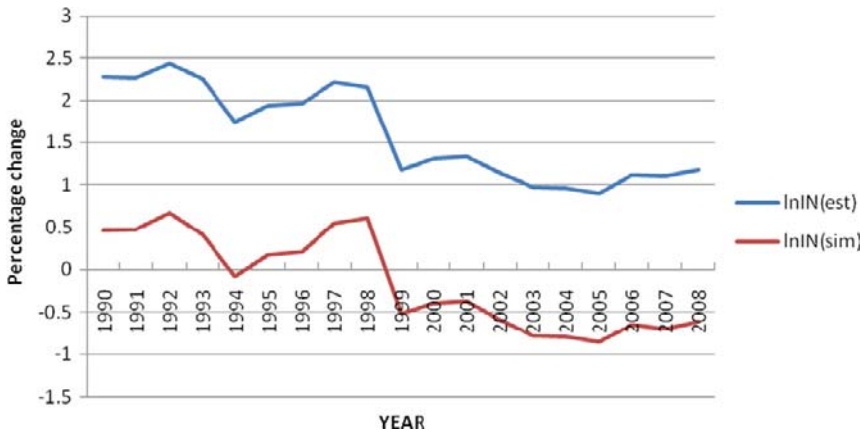
**Table 10.2. Simulated (predictor) values of the variables and the ethical index  $\theta$** 

YEAR	$\ln M$	$\ln IN$	$\ln Trade$	$\ln \theta$
1990	3.033362	0.460517	5.122838	1.8785
1991	3.008144	0.474554	5.133444	1.872984
1992	2.915919	0.671824	5.065107	1.761356
1993	3.046929	0.420285	5.132153	1.896692
1994	3.132733	-0.076	5.403994	2.049692
1995	3.007119	0.172046	5.323586	1.917336
1996	2.993872	0.217396	5.318813	1.924687
1997	2.803798	0.553654	5.220033	1.70711
1998	2.683936	0.60593	5.29687	1.646178
1999	3.082529	-0.5183	5.753487	2.132689
2000	3.008451	-0.39361	5.68834	1.999273
2001	3.019396	-0.36925	5.673175	2.009555
2002	3.10907	-0.58386	5.762562	2.132842
2003	3.204128	-0.78043	5.83687	2.257472
2004	3.182752	-0.79333	5.845187	2.231982
2005	3.199642	-0.85268	5.872034	2.257299
2006	3.14622	-0.64327	5.755731	2.165343
2007	3.214216	-0.69688	5.738739	2.220077
2008	3.149172	-0.60986	5.715475	2.139696

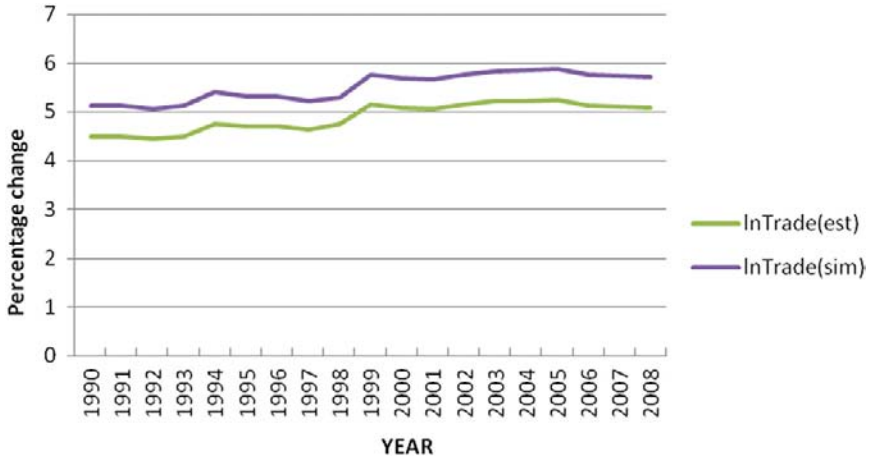
**Figure 10.1.** Percentage change of estimated  $\ln M$  and simulated  $\ln M$  over a period of 1990–2008



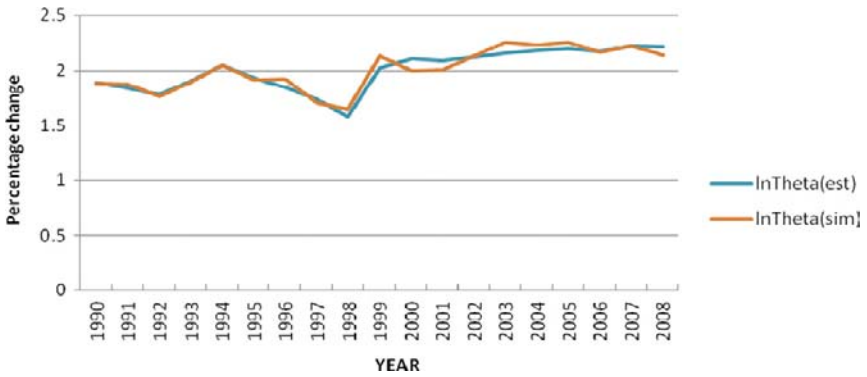
**Figure 10.2.** Percentage change of estimated  $\ln IN$  and simulated  $\ln IN$  over a period of 1990–2008



**Figure 10.3. Percentage change of estimated  $\ln$  TRADE and simulated  $\ln$  TRADE over a period of 1990–2008**



**Figure 10.4. Percentage change of estimated  $\ln \theta$  and simulated  $\ln \theta$  over a period of 1990–2008**



Predictor	Coefficient	SE Coefficient	T-statistics	P-statistics
Constant	1.2043	0.5362	2.25	0.040
ln IN	0.2444	0.0564	4.33	0.001
ln TRADE	-0.1763	0.0715	-2.46	0.026
ln $\theta$	1.0860	0.1129	9.62	0.000

$S = 0.0408542$ ;  $R^2 = 88.1\%$ ;  $R^2(\text{adj}) = 85.8\%$ .

Durbin-Watson statistic = 1.57629.

## 2. Regression Analysis: ln IN versus ln M, ln TRADE, ln $\theta$

The regression equation is

$$\ln \text{IN} = 1.32 + 2.27 \ln M - 0.022 \ln \text{TRADE} - 3.11 \ln \theta \quad (10.12)$$

Predictor	Coefficient	SE Coefficient	T-statistics	P-statistics
Constant	1.317	1.859	0.71	0.490
ln M	2.272	0.525	4.33	0.001
ln TRADE	-0.022	0.259	-0.08	0.935
ln $\theta$	-3.106	0.454	-6.84	0.000

$S = 0.124582$ ;  $R^2 = 96.0\%$ ;  $R^2(\text{adj}) = 95.1\%$ .

Durbin-Watson statistic = 1.45823.

## 3. Regression Analysis: ln TRADE versus ln M, ln IN, ln $\theta$

The regression equation is

$$\ln \text{TRADE} = 6.53 - 1.63 \ln M - 0.022 \ln \text{IN} + 1.57 \ln \theta \Delta \quad (10.13)$$

Predictor	Coefficient	SE	T-statistics	P-statistics
Constant	6.532	0.8467	7.71	0.000
ln M	-1.635	0.6632	-2.46	0.026
ln IN	-0.022	0.2577	-0.08	0.935
ln $\theta$	1.568	0.8266	1.90	0.077

$S = 0.124388$ ;  $R^2 = 87.1\%$ ;  $R^2(\text{adj}) = 84.5\%$ .

Durbin-Watson statistic = 0.887537.

## 4. Regression Analysis: ln $\theta$ versus ln M, ln IN, ln TRADE

The regression equation is

$$\ln \theta = -0.514 + 0.792 \ln M - 0.244 \ln \text{IN} + 0.123 \ln \text{TRADE} \quad (10.14)$$

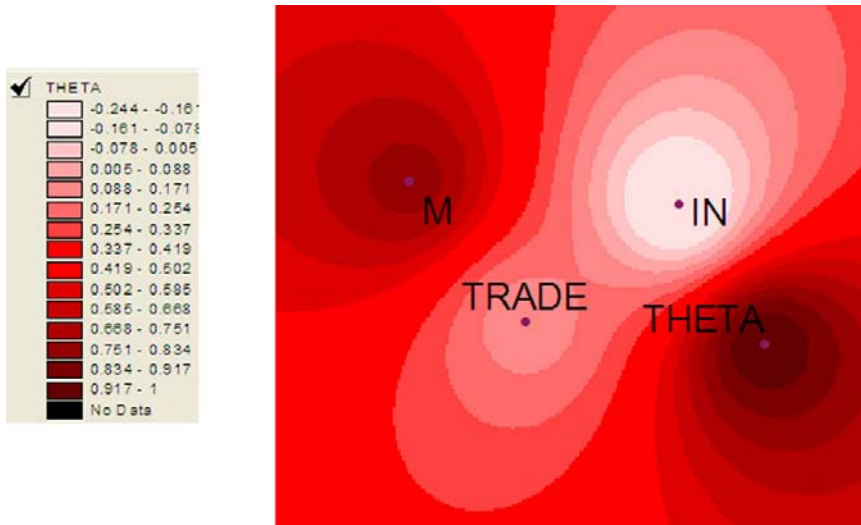
Predictor	Coefficient	SE	T-statistics	P-statistics
Constant	-0.5142	0.5125	-1.00	0.332
ln M	0.7923	0.0824	9.62	0.000
ln IN	-0.2437	0.0357	-6.84	0.000
ln TRADE	0.1234	0.0651	1.90	0.077

$S = 0.0348958$ ;  $R^2 = 97.2\%$ ;  $R^2(\text{adj}) = 96.6\%$ .

Durbin-Watson statistic = 1.87454.

**Figure 10.5. SDA in  $\ln \theta$  versus  $\ln M$ ,  $\ln IN$ ,  $\ln TRADE$**

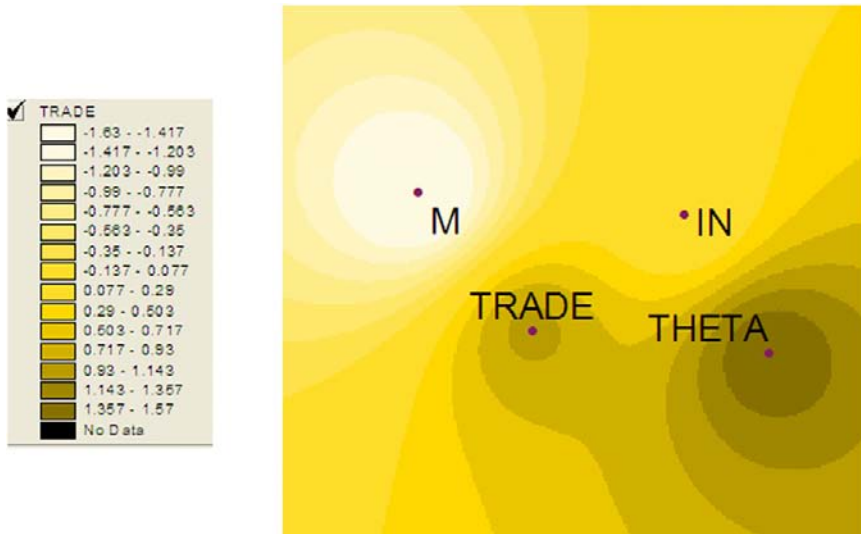
$$\ln \theta = -0.514 + 0.792 \ln M - 0.244 \ln IN + 0.123 \ln TRADE$$



**Figure 10.6. SDA In TRADE versus  $\ln M$ ,  $\ln IN$ ,  $\ln \theta$**

$$\ln TRADE = 6.53 - 1.63 \ln M - 0.022 \ln IN + 1.57 \ln \theta$$

simulated value (-1.417)



**Figure 10.7. SDA  $\ln M$  versus  $\ln IN$ ,  $\ln TRADE$ ,  $\ln \theta$**

$$\ln M = 1.20 + 0.244 \ln IN - 0.176 \ln TRADE + 1.09 \ln \theta$$

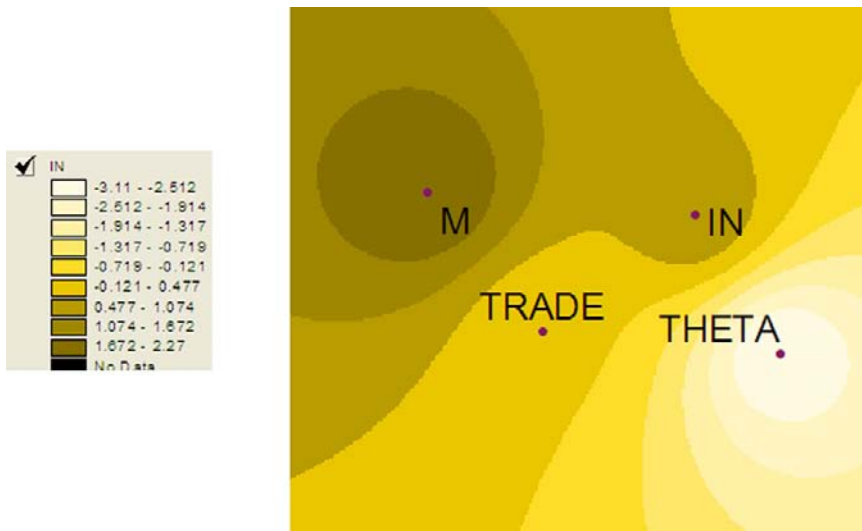
simulated value
(0.103)
(0.103)



**Figure 10.8. SDA  $\ln IN$  versus  $\ln M$ ,  $\ln TRADE$ ,  $\ln \theta$**

$$\ln IN = 1.32 + 2.27 \ln M - 0.022 \ln TRADE - 3.11 \ln \theta$$

simulated value
(1.672)





**10.7. SDA results<sup>2</sup>**

Note that the ethical index remains almost unchanged in the estimated and the normative equations because of the correct signs of the variables related to  $\ln \theta$ . But predictor (simulated) values are different from the estimated values (Figures 10.5–10.8).

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<sup>2</sup> Spatial Domain Analysis (SDA) is a methodology within Geographical Information System (GIS) that maps the interrelations between variables (hence entities), which can be represented in the real space. But when we treat the socioeconomic and abstract socioscientific cases by means of SDA, we take the real space to be represented by measured variables. Such measurements can be actual data or ordinalized representations. By so representing the variables and abstract relationships between variables visually by means of SDA technology, this is dealing with modeling capability of the spatial interaction of the entities in their spatial domains.

GIS is a technology that facilitates the study of spatial cause–effect relationships between  $\{(\theta, x(\theta))$ -domains and their entities. Thereby, SDA stores the requisite data into computer memory for doing SDA-work. The IIE-methodology, which is central in the learning model of unity of knowledge and is formalized by the significance of complementary relations in circular causation relational system, can be simulated by SDA in connection with the econometric estimation methods. Consequently, IIE-model as a real-world system can be represented in a “computer-world” according to SDA and GIS. The spatial analysis capability of GIS facilitates the manipulation of spatial information and helps generate various “what if” scenarios as necessary for evaluating decision-making processes on real-time basis. In this way, GIS becomes an appropriate tool to deal with the heart of the theme of relational epistemology, which is IIE.

## *Interest-Free Microcredit to Microentrepreneurs: An Institutional Network Approach*

### *11.1. Introduction*

With a population of over 150<sup>1</sup> million, Bangladesh provides a large consumer market for potential industries. Moreover, it holds one of the lowest wage structures in the world. The comparative advantage of Bangladesh lies primarily in its agro-processing industries. But besides agriculture, the rural-based microenterprise (MEs) sector in Bangladesh is a potentially lucrative field of investment (IPPF, 2001). In spite of its major contributions toward economic development, the rural-based microentrepreneurs in Bangladesh suffer from lack in working capital, institutional credit facilities, and poor management. There are many formal and informal financing organizations that are functioning in the money market of Bangladesh. Formal financing institutions like government and privately owned commercial banks normally give loans to large- and medium-scale industries (Alam, 2009). Cooperative banks in the country, although giving loans to the rural-based microenterprises, confine their credit giving activities mainly to the members of the bank (BIDS, 1981, 1988, 1989, 1990). One of the specialized and well-known microcredit giving organizations in Bangladesh called “Grameen Bank” (Yunus, 1993; Nabi, 1990) also gives microcredit to the rural-based microentrepreneurs, especially to the rural poor women. Besides many NGOs, moneylenders in rural Bangladesh are also an important source of lending funds to the rural-based microentrepreneurs.

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<sup>1</sup> “Population and Development indicator for Asia and Pacific” (2008). ESCAP South and South West Asia, Mid 2007 ESCAP Region. [http://www.unescap.org/esid/psid/population/database/data\\_sheet/2007/DataSheet2007.pdf](http://www.unescap.org/esid/psid/population/database/data_sheet/2007/DataSheet2007.pdf).

Due to the shortage of capital rural-based microentrepreneurs are compelled to borrow funds from local moneylenders at a high rate of interest. In recent years different Islamic banks in Bangladesh started lending interest-free microfinance to different rural-based microenterprises. In comparison with microfinance by conventional banks and other informal financing organizations, the “interest-free microfinance” is found to be one of the challenging and contributing lending tools that contributes greatly in creating job opportunities for unemployed rural poor and in enhancing the economic growth in the country. The lending procedures followed by Islamic banks also contribute greatly in minimizing different costs related to exchange functions and other business activities of both the lender and the borrowers.

## ***11.2. Background and literature review***

### ***11.2.1. Objective***

The objective of this chapter is to bring out the mechanism adopted by Islamic banks in Bangladesh toward ameliorating the borrowing needs of rural grassroot microenterprises in Bangladesh. By adopting the Islamic modes of financing and conducting business in a networking fashion and keeping clientele–business in close touch, Islamic banks are able to effectively mobilize savings at the grassroot levels. The modus operandi of such Islamic bank financing instruments on the basis of interest-free trade-related instruments and by working in close touch with the clientele, Islamic banks are shown to bridge the gap between the lenders (the Islamic banks) and the borrowers (the microenterprises). Thus, this study goes in the direction of lender–borrower networking mechanism.

Poverty alleviation and enabling rural microenterprises at the grassroot levels require a complementary process, which is taken up in this chapter as institutional networking, by integrating the poor and needy and the microenterprises with ethical market process. The result is an economic and social experience in grassroots development. Such an approach is much needed for poverty alleviation in rural sector of Bangladesh.

This chapter outlines the mechanism through which Islamic banks in Bangladesh carry out the process of mobilizing grassroot microentrepreneurial savings in productive ways, thus, enabling the poor and needy. The argument is that mainstream banking system based on financial collateral and interest-loaded loans cannot be friendly to the needs of grassroots development. Consequently, the complementary process of participatory development that is congenial to the poor and microenterprises is not germane in the mainstream banking operations vis-à-vis developing the grassroots. In this vacuum, Islamic banks by their interest-free instruments and friendly operations are able to both mobilize savings in the productive directions and generate social relationship lender–borrower relations

between clientele as borrowers and Islamic banks as lenders. This kind of participatory development with complementarities on the ethical issue of lender–borrower relationship is an example of the moral consciousness of unity of knowledge and the world-system applied to the grassroots poor and microenterprises.

### ***11.2.2. A brief literature review***

In least developed countries, as in developing countries in general, microentrepreneurs play significant roles in the elimination of the unemployment problem, which remains a serious impediment to a nation's economic growth. Although the large-scale industries are involved in mass-production and invest large amounts of capital, these industries are mostly urban-based. Consequently, large-scale industries fail to play a significant role in solving unemployment problems related to the rural people. This is exactly where microentrepreneurs succeed better (Macuja, 1981; Anderson and Khambata, 1982; Little *et al.*, 1987; Little, 1988; Ashe and Cosselett, 1989). In relation to the role of microentrepreneurs, Anderson and Khambata (1982) and Macuja (1981) argue that the rate of labor absorption by this sector is significantly higher relative to that of large-scale industries.

However, studies show that due to various problems, such as the lack of sufficient funds caused by inadequate infrastructural and institutional arrangements and shortcomings in the area of marketing and distribution, the growth of the MEs in the rural areas are less pronounced than could be expected (Alam, 2003, 2009). The slow growth of MEs, in turn, results in the migration of manpower from rural to the urban areas, which ultimately increases problems, such as overcrowding, increased competition for fewer jobs, etc. in the urban areas. Moreover, due to the limited job opportunities such urbanization additionally hampers the nation's economy. Myrdal (1968), in this regard, observed that a rapid destruction of rural level or cottage industry would not only eliminate a source of supplementary rural income, but would also accentuate the push toward urbanization and further aggravate congestion in urban areas (Farooque, 1958).

## ***11.3. Research methodology***

### ***11.3.1. Research method***

The research methodology applied in the study is of a qualitative nature (Jick, 1979; Patton, 1985; Sherman and Webb, 1988; Merriam, 1998). A qualitative type of research is characterized by collection of data directly from respondents in the field. A multiple explanatory case study (Yin, 1994) method was adopted as a research strategy in order to focus on

contemporary phenomenon within the real-life context of different rural-based microentrepreneurs.

As a part of data collection processes, interviews were conducted on officials of different Islamic banks, commercial banks, cooperative banks, and moneylenders and their customers. The total time spent for collecting required data from the field was six months. The initial data collection was done in the year 1998, while officials of different Islamic banks were interviewed. During the second and the third field trip in 1999 and 2000, respectively, interviews were conducted with officials of different private and government commercial banks, cooperative banks, and moneylenders. Interviews were also conducted with 360 grassroot-level microentrepreneurs, the clienteles of different Islamic Banks in the country. Respondents interviewed belonged to different grassroot-level microenterprises like poultry, diary, handloom, and handicraft industries.

The respondents interviewed are of different age group ranging from 18 years to 45 years and 60% of the respondents are women. Interviews were conducted in different remote areas of the country. These are, for example, Khulna, Barisal, Dhaka, Chittagong, and Cox's Bazar. An average of 1.30 hours time was spent for each respondent while conducting interviews.

Regarding the collection of data from the field, a direct interview method was used. While conducting interviews the following steps were taken:

- Both formal and informal means of interview methods were used.
- Structured and semistructured questionnaires were prepared and the same were used while interviewing respondents. The questionnaire was used depending on the circumstances and the qualifications of the respondents.
- Audiotape recorders were used to record respondents answers. Where the use of tape was found difficult the answers were recorded in the notebook.
- Questionnaires were prepared keeping different issues into considerations, like lending procedures, bank–customer relationships, and also other issues related to microfinance to microentrepreneurs.
- Subsequent to the interview recorded tape was replayed and data recorded in the spreadsheet. The same procedure was applied to the data collection that was recorded as notes.
- Based on the interviews and respondents information data were arranged and analyzed from the theoretical perspective.

Almost all respondents interviewed are clienteles of different Islamic banks in the country. However, it was observed that many of them used to take loans from different financing organizations, like government commercial banks, different NGOs, and informal moneylenders, before they started taking loans from Islamic banks.

#### 11.4. Theoretical framework

The concept of an *Institutional-Network* theoretical frame of reference (Alam, 2002) is used to study this particular phenomenon. The Institutional-Network theoretical concept is developed based on Whitley's (1992a) "Business System" (BS) institutional approach and Jansson's (2002) "Network Institutional Model."

To study the impact and influence of "interest-free microfinance" to the rural-based microentrepreneurs based on Whitley's (1992b) "Business System (BS)," financial organizations of similar types in Bangladesh are categorized into different financial systems, for example, market-based financing system (MBFS) such as conventional banks, Islamic Financing Systems (IFS) such as different Islamic banks, cooperative financing system (CFS), and traditional money lending system (TMLS) viewed as particular arrangements of hierarchy-market relations that become institutionalized and relatively successful in a particular context. A similar arrangement is also done to institutionalize different rural-based microenterprises. Various microenterprises of similar nature are thus grouped into three different ME Systems, such as grassroot levels (GL), season-based (SB), and semimechanized (SM) ME Systems. Financing organizations and microenterprises under different financing systems and microentrepreneurs under different ME Systems are regarded as economic actors acting within these organizational fields.

This present study mainly focuses on the lender–borrower network relationships between financing organizations under IFS and the grassroot-level microenterprises under Grassroot-Level Microenterprises System (GLMES).

#### 11.5. Interest-free loan giving procedures followed by Islamic banks: an empirical review

Different Islamic banks in Bangladesh give loans to microentrepreneurs on a Cost plus Profit under deferred Payment (CPPUDP) called *Bai-Muajjal* mode of Islamic financing. The procedures that are normally followed by the Islamic banks in Bangladesh to give loans to its clientless are mentioned below:

- The bank contact potential customers in rural areas through their old clienteles in the locality or through religious and political leaders.
- Once customers are selected to give loans they are given the idea of the interest-free loans and explain the nature of the mode of investment.
- Once a formal communication begins with customers the bank officials arrange meeting with them regularly and advise them to form a group consisting of five members. Each group must select a group leader.

This is one of the conditions to obtain loans. A group may consist of microentrepreneurs in different professions.

- Group leaders are required to form a team. A team consists of five group leaders. In each team one member is selected as a team leader. Team leaders look after the welfare of the team members and each member who is the group leader of his or her group keeps contact with the members of the group.
- It is necessary for each member in the group to save a certain amount of money with the bank in order to be eligible for loans. The amount of invested fund may vary from taka. 25 or a maximum of taka. 50<sup>2</sup> every week. The savings is done for 10 weeks.
- Once a group member fails to pay the deposit in any week other members in the group are held liable and would be asked to assist the defaulter.
- The team member, who also works as executive for the group, collects savings and hands it over to the bank officials who visit them at the end of the week.
- Each member needs to open a bank account with the bank where weekly savings are deposited. These types of savings accounts are called “Profit & Loss Savings Accounts” (*Mudaraba Savings Accounts*).
- The bank handles the weekly sum of savings quite carefully because a customer’s deposit figure must exceed 5% of the loan amount he/she applied for. No customer is entitled to receive any loan from the bank, until the targeted savings (exceeding 5%) are deposited with the bank.
- Once the saving period ends the group leaders arrange a meeting with all the individual members of each group. In this general meeting, members decide on the use of the loan amount, and a list of each member’s requests is handed over to the bank officer. After considering this request and the saving position of each applicant the bank takes final decision to give credit.
- The loans are given in kind rather than in cash. Once the loan is sanctioned, the customer needs to select supplier of materials or goods and bring invoices from the supplier.
- As per CPPUDP mode of finance, the bank adds profits to the invoice price that the customer presents to the bank and debit the amount paid to supplier plus profit made to customer’s account.
- As a security measure, the bank asks the customers to produce their land property title documents as well as a letter of recommendation either

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<sup>2</sup> 1USD = Bangladesh Taka 70.32674 (<http://www.oanda.com/convert/classic>) (as on April 1, 2009).

from a person notarized by the bank or from an influential customer of the bank in the locality.

The repayment of loans, including profits, is normally divided into a number of equal installments. The banks fix the installment rate of repayment of the loan. This repayment time starts two weeks after the customer receives the loan or soon after the product is ready for sale in the market.

### ***11.6. Analysis of empirical findings***

The results of the interviews with the respondents the rural-based microentrepreneurs in different parts of Bangladesh, and their lending organizations are reviewed in the following section. It includes an analyses of the interviews conducted with different Islamic banks, government and private commercial banks, cooperative banks, and moneylenders and their borrowers belonging to the different GLMES.

This section of the chapter discusses the finding of relationships between various formal and informal financing organizations and small entrepreneurs interviewed in Bangladesh. In order to observe the lender–borrower relationships, especially the relationships between small entrepreneurs and various financing organizations, and different small entrepreneurs, interviews were conducted with senior officials of four commercial banks and three Islamic banks.

A comparative review of the empirical data derived from the field study regarding the dealings of financing organizations with the small entrepreneurs is given below.

#### ***11.6.1. Bank–customer relationships***

It is concluded from the study that the bank–customer relationships differ from bank to bank relations. Aside from a few specialized commercial banks, most of the commercial banks, government banks, and privately owned banks maintain a formal relationship with their customers. In the case of Islamic banks, the bank–customer relationships are a mixture of both formal and informal types. Due to the nature of their business transactions, Islamic banks directly contact their customers. Almost all the branches of commercial banks are located in urban areas. Islamic banks, since they deal with the rural-based small entrepreneurs directly and give supervisory loans, maintain their branches in rural areas. The study also reveals that small entrepreneurs have easy access to officials of Islamic banks than other commercial lending organizations.



### ***11.6.2. Opening of accounts***

Commercial banks maintain various deposit accounts for their customers, and the initial deposit taken by commercial banks are so high that people of low-income level cannot afford to open accounts with these banks. Procedures followed by commercial banks for opening accounts are also complicated and require a lot of paperwork. Islamic banks do not charge for opening a savings account and the initial deposit amount required is negligible.

### ***11.6.3. Customer's access to bank staff***

It is known from the study that generally small entrepreneurs do not get many chances to contact any commercial bank senior staff members directly. It is very difficult to get access to the bank officials, especially in the case of the government banks. Commercial banks normally pay a great deal of attention to important and influential customers.

With regard to Islamic bank finance it is observed that a customer may meet senior officials of the bank without experiencing any difficulties. Due to the nature of the credit policies of Islamic banks as mentioned in section 11.5, it is a necessary practice of the bank officials to keep constant contact with their customers. Rural-based small entrepreneurs may avail opportunities to lodge their complaints with a supervising officer who visits the site regularly and the managers of the bank welcome customers of all types to visit whenever necessary.

### ***11.6.4. Bank staff's visits to customer's business***

It is concluded from the study that the commercial banks normally do not take any responsibility in guiding their customers. If a customer applies for a loan, these banks simply approve the loan. These banks do not question the applicant's level of experience in his particular line of business or take any initiative to guide them. If the loan department is satisfied with the customer's project and gets the required securities, the bank sanctions the loan to the customer. However, the customer relationships in this respect with Islamic banks are different than those of traditional banks in the country. An Islamic bank makes necessary arrangements for senior officials to visit small entrepreneurs at regular intervals. Customers may come and discuss any issue concerning their business at any time. Senior bank staff members even discuss various issues regarding business outside the bank premises. Sometimes bank managers pay surprise visits to their customers' business premises. In order to maintain a close monitoring of borrowers activities Islamic banks normally do not give loans to a customer who lives beyond 15–20 km of the bank branch.

### ***11.7. Internal factors influencing borrower–lender relationships***

It is observed from the study that, apart from the above discussion, there are a few important factors that determine the extent of the relationships between the financing organizations and the small entrepreneurs. These are discussed in the following section.

#### ***11.7.1. Delegation of authority to give loan and to deal with default cases***

The process of delegating authority in commercial banks normally differs from bank to bank. In almost all commercial banks normally the boards of directors are authorized to sanction credit to customers. However, with the prior permission from the higher authority, certain banks give their branch managers authority to sanction loans when it is below a certain amount.

Islamic banks generally differ from commercial banks in the way they delegate authority to their staff members, especially with regard to how they can sanction loans. Normally, the final decision to sanction a loan to a customer is taken up by the Management Committee, the Executive Committee or the Board of Directors. In order to avoid unnecessary delays in giving loans to customers, some Islamic banks authorize branch managers to give loans up to a certain limit without the consent of a higher authority. In the case of commercial banks there is no such decentralization, since the branch manager is not allowed to sanction loans.

### ***11.8. Special policies used by Islamic banks to develop bank–customer relationships***

#### ***11.8.1. Moral teachings to customers***

Senior bank staff members are trained in such a way as to motivate customers to improve their saving habits, and also to give them moral teachings. When customers visit the bank's officials for business purposes, much of the discussion is entwined with various religious issues and the bank officials advise customers to apply good moral principles in their daily lives. Almost all-Islamic banks have special facilities in the bank so that their staff and customers can perform their prescribed prayers on time. During the afternoon and late afternoon prayers, officials stop their activities for a while and all the staff and visiting customers attend the congregational prayer in the prayer room. Even customers who do not habitually perform the obligatory prayers get accustomed to participating in afternoon prayers when they visit Islamic banks. After such prayers, customers and bank officials sometimes discuss the various aspects of practicing the Islamic faith and how belief affects one's day-to-day life. In such sessions, the general customer body gets to establish a close and

brotherly relationship with the bank's senior and junior staff members during office hours.

### ***11.8.2. Special program by Islamic banks with their customers***

It is observed during the field study that the Social Investment Bank Limited (SIBL), one of the leading Islamic banks in the country, has special programs for contacting its customers, especially the small entrepreneurs in rural Bangladesh. They organize meetings with their customers at their place of business. Normally, village leaders or educated elderly people of the locality whom people respect the most organize and lead these sort of meetings. On occasion, senior officials of the bank in charge of a particular project will attend various religious functions in the same rural areas where their customers live. During these visits, the bank officials discuss various issues relating to the importance of having a developed social and economic life with their customers. Apart from that, they also discuss the bank's investment policies and encourage the rural people to save some of the money from their daily household expenditures so that they can reinvest into some profitable projects. Thus, the bank's staff in charge of various rural-based SCI projects gets an opportunity to have close interaction with their customers.

### ***11.9. Conclusion***

The lending of funds by Islamic financing organizations to microentrepreneurs may be termed as "*giving and taking policy.*" By this term it is meant that the interest-free lending is organized in such a way that borrowers first of all must deposit in order to be qualified for a loan. It creates a mutual obligation between the lenders and borrowers. This in reality assists in developing a close lender–borrower network relationships between the bank and the small entrepreneurs. The microentrepreneurs are bound to fulfill their obligation by depositing savings with the bank. Once customers comply with this condition, as a rule the bank gives loans to them. This system makes the customers conscious of making proper use of their borrowed funds. This system also develops initiative among microentrepreneurs to work hard and to be sincere in dealing with bank loans. It also encourages them to save more as they need to repay the loans after a certain period of time. The amounts of loans are of course higher than the savings that customers deposited with the bank. The obligation of the bank is looked from the standpoint that they become more vigilant to observing that the loans are being properly utilized, failure of which might cause a great financial loss to them.

Thus, it is concluded that the lending policy of the Islamic banks through developing saving habits creates mutual obligations between

the lenders and borrowers. It may thus be concluded that, since the nature of the Islamic banking finance is featured by “In Kind” loans rather than “In Cash,” this type of lending organizations are occupying a leading position in developing and maintaining lender–borrower network relationships compared to other traditional financing organizations in the country.



# **FUTURISTIC PERSPECTIVES**



## *So Thirty Years After – Where Do Islamic Economics, Finance, and Banking Stand?*

Two hundred years of economics and liberalism in the West have tried to permanently entrench social and economic thinking in rationalism and the rationality axioms. Many different kinds of rationalism and rationality axioms have been tried and they continue on to be developed.

Instrumental rationality is a behavior regarding choices concerning majority rule on certain issues (Etzioni, 1988). Bounded rationality explains rational choices on the basis of limited information regarding such choices (Simon, 1957, 1960). The usual postulate of economic rationality axiom involves preordering of choices under conditions of optimality and steady-state equilibrium resource allocation between competing ends. Robbins considered such kinds of transitive preordering as the basis of economic rationality (Robbins, 1935). Yet Sen (1977) recalling Condorcet (1785) calls them games of rational fools.

Rationalism is a concept of metaphysical origin. The metaphysical basis of rationalism is premised on such abstruse questions as the nature of spirituality, reason, and revelation. It comprises humanly construed ideas regarding beings that remain away from possible human cognition. They are at best contained within surmised speculation rather than facts. Such ontological premises relate to the being and theology of God. Such speculation on the a priori existences of divinity remains isolated from the nature of cognitive reasoning and the world-system (Kant, 1949a, 1949b, 1964, 1977; Heidegger, 1988).

The metaphysical foundation of ontology in social theory has resulted in an unbridgeable dichotomy between the a priori realm of God, the divine law, and the a posteriori realm of reasoning and the world-system. This resulted in the divine law remaining ontologically dysfunctional in the real world of cognitive and material forms and relations. Metaphysics depicted the world-system in terms of the corporeal representation of God in it. This is pantheism, as in many religions. Such representation of the relationship between God and material forms of pantheism is found in Greek theology that encroached into Western metaphysical thought



(Vegetti, 1995). Hinduism and Christianity (Bruteau, 1997) abound in such pantheistic belief of corporeal representation in material forms.

Metaphysical implications of the a priori kind, dissociated from the a posteriori world of matter and mind, entered social and economic thinking from the school of Physiocracy (see Schumpeter, 1968) and by Adam Smith (see Coase, 1994). Metaphysical foundation of reasoning in economic theory is found in the natural liberty doctrine and its implication in the idea of laissez faire market process. The law of natural liberty underlying the invisible hand principle of Adam Smith (1984) and the idea of the divine law (jus divinum) in Physiocracy are examples of the metaphysical moorings of social and economic thought (Schumpeter, 1968).

Rationalism as understood in the metaphysical sense in Occidental philosophy poses a problem of heteronomy, which means the duality between the a priori divine law and the a posteriori world-system (Carnap, 1966; Choudhury, 1997b). The two are dissociated metaphysical realities. The problem of uniting these diverse domains remains unresolved in the philosophy of science. Husserl (1965) has written his famous criticism against such dichotomy of reasoning. He searches for unity between a priori and a posteriori forms of reasoning. Failing this, he claimed that the noncommensurate domain of reasoning is unable to form substantive knowledge. Hence, the worldly function of divine knowledge, because it could not be explained by the problem of heteronomy, was abandoned by Husserl as it was by all the architects of the Eighteenth Century Enlightenment. The reasoning quagmire continues on today.

### ***12.1. The liberal world-system***

The economic, financial, social, and scientific reasoning in Occidentalism is a profound example of the reasoning dichotomy caused by the problem of heteronomy. The duality consequences of economic rationality and rationalism between the spiritual and material domains remain entrenched in all the sciences (Dampier, 1961).

Economic reasoning is grounded on the postulates of economic rationality. Such postulates are the foundations of notions of optimality and steady-state equilibrium of resource allocation and the preordering of rational choices as defined by independently assigned individual and social preferences. Scientific reasoning is grounded on such rationalist basis of Occidental thought. Its artifacts are premised on similar constructions of physical world-systems with either unbounded evolution or contained optimality and equilibrium states. Optimality and steady-state conditions imply that such states of nature are end points of learning caused by continuing relations. Economic theory is silent on the dynamics of processes caused by learning structure and complex relations.

Among the kinds of artifacts influenced by rationalism and economic rationality are markets (micro), economy (macro), institutions (policy),

and the political economy (world-system). In all such artifacts, competing behavior, marginality concepts, and scarcity of resources silence the process dynamics of real forms of social reconstruction (Shackle, 1971).

The result is that morality, ethics, and values cannot be introduced as endogenous forces to explain exchange relations and the inherent decision-making. The underlying institutions and social choices along with their characterization of the social welfare function repeat the social preferences of rational choice. Consequently, the postulate of rational choice exists both at the microeconomic and macroeconomic levels.

Now in social reconstruction of ideas, there is only one way how the endogenous nature of preferences and liberal values can be projected from the individual to institutional and social levels. It is to carry through the same nature of methodological individualism and independence of preferences across all domains. This represents the endogenous continuity of methodological individualism all through in every system (Buchanan, 1971). The result is a characterization of social Darwinism in management and institutions as in society at large. It is manifested in the intrinsic property of exogenously formed relations that remain independent of ethics and values (Buchanan, 1978).

### ***12.2. Exogenous and endogenous preference relations in social choice theory***

Contrarily, ethics and values are formed by continuous transformation of behavior directed toward enlightened preferences. Ethical transformation acts at the level of receptive society. The role of policy and enforcement is subsumed in the climate of endogenous social change forming ethical conduct. Endogenous preferences are learned by continuous interaction between the embedded forces of self, society, reasoning, and the sciences.

On the contrary, exogenous preferences form social behavior by the imposition of external policies and programs of enforcing institutions. Moral and ethical rules (Sen, 1988) are not learned; rather they are coerced by the connectivity between the self-interest and the social whole. Even the external ethical preceptor rule in social change construed by Rawls (1971) and Hammond (1987) acts as the exogenous rational agent that imposes a particular external view of ethical behavior and laws. In this milieu, human behavior is construed on the basis of competition and economic rationality. Independence of exogenously formed preferences and methodological individualism, thereby become the logical consequences of the liberal worldview in the ethical preceptor model.

The same implications are true of civil libertarianism upon which the roots of liberalism rest (Minogue, 1963). Hammond (1987) has pointed out that in social aggregation using the utilitarian model the external ethical preceptor remains an exogenous control. It is not endogenously induced to cause an automatic reformation of individual behavior, one that can then be simulated and aggregated by complex processes. If otherwise such a

kind of complex aggregation of learning preferences could be done across processes of exchange relations, the study of macroeconomics could be based on distinct methods of interrelationships between morality and ethics when these are induced into entities such as agents, variables, production menus, socioeconomic development, and social preferences.

Yet this is not how economic and scientific reasoning along with their offshoots have understood preferences as behavior arising from the foundation of ethical reasoning (Spencer, 1978). The absence of ethical catalysis in preference formation and market menus remains permanent in received economic theory. Thus, Hayek denied the role of social justice in market-based decision-making. He explained what he considered as impossible for ethics in the market process as the “mirage of social justice” (Hayek, 1967).

Other reviews can be noted as well. Wallerstein (1998) described the advance of modernism and neoliberalism in terms of evolutionary bifurcation between interacting forces that displace each other and create new orders out of dialectical conflicts. This process continues on ad infinitum as a dynamics of change and displacement in the Occidental worldview.

This kind of conflicting and evolutionary social dynamics is also of the nature of social Darwinism (Dawkins, 1976). On the other side, Marx can be categorized as a breakaway spark from the anvil of liberalism just as his social doctrines emanated from the classical economic origin of David Ricardo (Blaug, 1968a, 1968b). Marx’s overdetermination problem of epistemology and social thinking in which a plethora of episteme displaces each other by conflict and power arises from the undefined nature of such competing episteme (Resnick and Wolff, 1987).

Thus, all of liberalism, civil libertarianism, utilitarianism, and their semblances found in social Darwinism describe the existing paradigms of mainstream economic and social doctrines on the basis of methodological individualism and independence of relationships between entities and formal variables. The underlying premises of such paradigms are rationalism *qua* economic rationality and the conflicting worldview of individual and social behavior. All world-systems are made to evolve in a self-contained way according to the continuity of norms and behavior based on methodological individualism. This is how Wallerstein (1998) refers to self-contained evolutionary dynamics of the capitalist world-system as the transition of the short-run episodic geopolitical TimeSpace into the long-run eternal TimeSpace.

### ***12.3. The questioning on paradigm shift***

Critical questions arise from the state of academic thinking regarding the theory and policy of institutionalism in the liberal worldview. We deduce from our above argumentation that liberalism is deeply centered in

methodological individualism and self-interest, the background of which is rationalism and economic rationality. Sullivan (1989) laments on the problem of social differentiation caused by the present state of liberalism. Social differentiation of liberalism pervades all of the scientific reasoning (Hull, 1988).

The axiom of rationality carries with it the assumptions of scarcity of resources, competition and marginal rate of substitution. The context of human cooperation is relinquished to competition as sympathy succumbs to self-interest in market exchange. The resulting optimal calculus of economic, social, and physical sciences is then entrenched in nonlearning dynamics at the terminal points of optimality and steady-state equilibriums. The process-oriented exchange relationships between one point of resource allocation to another remain undefined.

Optimality reduces innovation to a terminal problem regarding the existence of such optimal and steady-state equilibriums (Quirk and Saposnick, 1968). Stability of equilibriums is simply a time-dynamic problem. It leaves the structural content of theory and application unchanged. Thus, policies and institutional change remain exogenous to a process of organic learning. When the concept of process is invoked, as in Marxist political economy, there disequilibrium dynamics prevails by virtue of social conflict. But such states do not remove the dynamic conditions of scarcity, competition, and the axiom of economic rationality (Lange, 1942).

In all, therefore, even with time being introduced to define a dynamic problem of optimization, the structure of resource allocation and the market-institutional implications do not change to novelty. They simply perpetuate the postulate of marginal rate of substitution and scarcity of resources as the core assumptions of mainstream economic theory. These models and their theories fail to describe how the learning aspects of exchange relations take place. Economics abandons process model for an optimal model.

It is in such a prevalent nature of socio-scientific inquiry that a new scientific revolution is needed. We recall here the words of Kuhn on the nature and structure of scientific revolution *qua* the idea of paradigm shift (Kuhn, 1970, p. 152). "... scientific revolutions are here taken to be those noncumulative developmental episodes in which an older paradigm is replaced in whole or in part by an incompatible new one."

#### ***12.4. The emergent Islamic economics and finance as a subset of the new worldview***

The emergence of Islamic methodology and application in social and economic theory is that new socio-scientific revolution. That is because of its sharp contradistinction to the prevalent paradigms of social and

economic worldview. The Islamic methodology points out this difference and carries its new paradigm through substantive logical formalism to the level of its application in various socio-scientific issues that are spread over diverse socio-scientific systems. Yet the Islamic worldview by its methodology is centered in the formalization, analysis, and application of every issue and problem in diverse systems. The Islamic methodology having this kind of commonness in everything may thus be characterized as being universal and unique to all socio-scientific studies (Choudhury, 2007a).

The Occidental worldview is premised on rationalism, economic rationality, competition, and opportunity cost concepts of resource allocation in both the static and time-dynamic versions, and at the microeconomic and macroeconomic levels. Islamic socio-scientific theory is the study of embedded system of subsystems that learn by pervasive organic unity of knowledge between diverse issues and problems within and across systems.

### ***12.5. Objectives***

In this chapter, we will expand on the following components as our complete objective to bring out the nature and structure of its scientific resolution.

First, we will explain the foundation of unity of knowledge derived from the epistemology of the *Qur'an* and the *Sunnah* (Prophetic guidance). The logical formalism that ensues will be shown to underlie a unique and universal theory of all socio-scientific systems.

Second, we will formalize the phenomenological model of unity of the divine law and its nature of guidance in respect of the problem of preference aggregation according to the principle of pervasive complementarities (PPC). A complex theory of social aggregation is invoked here to bring out how the learning organisms between entities construct the macrosystem from its complex interface with the microsystems.

Third, we will analyze selective data for Malaysian Islamic banking in the light of the episteme of unity of knowledge applied to Islamic financial instruments. We will investigate whether today's Islamic banking is truly linked with the worldview premised on the *Qur'anic* episteme of relational and organic unity of knowledge.

### ***12.6. Tawhidi epistemology as the foundation of the new socio-scientific inquiry***

For example, to prove the methodological foundations of world-systems in *Tawhid*, we will examine the field of Islamic economics and finance. We will now prove how these fields are premised on the *Tawhidi* worldview methodology.

*Tawhid* (derived from the *Qur'anic* term *Ahad*) means oneness of God. The substantive meaning of *Tawhid* encompasses the divine attributes along with their various perspectives of systemic unity of knowledge that is attained by invoking and applying the implications of the Prophetic guidance (*Sunnah*) in practical issues of all world-systems. For example, the meaning of the Signs of God conveys the manifestations of unity of the divine law in the order of things. This is followed by the understanding of that cognitive unity between the good things of life. Thus, the extended meaning of *Tawhid* encompasses unity of the divine law and of the world-system along with its learning entities and variables in every domain. Such a *Tawhidi* Unitarian concept is thereby a systemic and organic precept of symbiotic learning in and between the entities and the variables of systems and across diverse systems. Such a worldview of systemic and organic unity of the divine laws and its induced world-system in the midst of organic learning is embedded in the precept of *Tawhid*. The nature of such unity of systems is affirmed by the *Qur'an* (36:36) in terms of the principle of pairs, a felicitous pairing universe of everything that is good.

The pairing universe depicted in the *Qur'an* explains the continuous induction of the world-systems by the principle of complementarities as pairing between entities and systems (*Qur'an*, 13:3). We call the principle that establishes the paired universe of the *Qur'an* in the midst of symbiotic learning in it as the PPC.

This principle is absolutely opposite to the postulate of opportunity cost, marginal substitution, competition, scarcity of resources, and methodological individualism. All of these are intertwined with each other in the liberal idea of economics, society, and science. In mainstream economics and finance, the PPC is replaced by the central postulate of marginal substitution. Even in the dynamic sense of time/technology-driven evolution of the production possibility surfaces, the assumptions as mentioned above abide at every phase of the evolution. That is because time remains a nonstructural datum that *does not produce* change. *Time simply records factors of change. Change and transformation are caused by knowledge* in the process of gaining complementarities of exchange embedded in variables and entities observed in knowledge, time, and space dimension.

In the case of Islamic resource allocation problem the neoclassical-type production possibility curve cannot exist because of the continuous perturbation of the surfaces in the midst of learning behavior. Besides, learning in unity of knowledge and its causality with resources causes such resources to increase continuously as new avenues of doing things are learned and applied. Thus, resources are always evolving rather than becoming scarce in the learning worldview of unity of knowledge. Consequently, the assumption of scarcity cannot exist in the Islamic resource allocation plane. Because of the continuous perturbation of the production possibility surfaces by learning, the methods of optimization at

terminal points and, thereby, the concept of steady-state equilibrium are both replaced by that of continuous simulation across learning processes and evolutionary equilibriums of resource allocation. These take place in participatory systems that are caused by learning behavior producing inherent organic symbiosis (Capra, 1983; Choudhury *et al.*, 2007a).

In the Islamic case, we note that, because of the primordial nature of knowledge-flows across space and time, Islamic resource allocation concept takes place in the composite dimension of knowledge–time–space. They are further deconstructed into multidimensional characterization of any one of the dimensions. In this composite knowledge–time–space dimensional category, space itself has three coordinates of its own. Time in Islamic epistemology is differentiated between time-flows (*Asr*) and transcendental time (*Dahr*). Knowledge-flows are derived from the epistemological foundation of *Tawhid*, and are therefore, carriers of unity of the divine law into the world-systems. Such derived knowledge-flows and, thereby, the episteme of unity of the divine law impact upon diverse world-systems giving the spatial and time-recorded implications of socio-scientific position and change.

### ***12.7. Recasting the Tawhidi model of the Islamic world-system: the knowledge–time–space delineation of socio-scientific change***

The combination of knowledge, time and space is now characterized by the functional:

$$\{\theta \in (\Omega, S), \times(\theta), t(\theta) = t\} = \{\theta, \times(\theta), t\} \quad (12.1)$$

The  $\{\cdot\}$  brackets indicate verities of evolutionary points under the impact of knowledge-flows taken over continuous learning processes and systems. Knowledge-flows are derived in the perspective of pairing according to the foundational Islamic epistemology represented by  $(\Omega, S)$ .  $\Omega$  denotes the *Qur'an* and  $S$  denotes the *Sunnah*. The *Sunnah* comprises the guidance of the Prophet Muhammad. In this regard the *Qur'an* declares (4:59): “O you who believe! Obey Allah, and obey the Apostle, and those charged with authority among you. If you differ in anything among yourselves, refer it to Allah and His Apostle, if you do believe in *Allah* and the Last Day: That is best, and most suitable for final determination.”

$x(\theta)$  denotes the knowledge-induced vector or matrices of variables pertaining to the symbiotic world-system of participation and learning in respect of given issues and problems under investigation. The knowledge–time–space continuity of such knowledge-induced variables signifies the spatial domains evolving under the force of evolutionary ethical learning, which reflects the universal pairing phenomenon of knowledge and

materiality. The spatial domains could be driven by interpersonal values, endogenous consumer and social preferences, production menus, markets, economy, society, finance, and science (Choudhury, 2004b).

$t = t(\theta)$  denotes time-variable while signifying the primordial role that knowledge-flows play on determining the flow of time in respect of recording the coordinates of spatial geometry,  $\{(\theta, \mathbf{x}(\theta))\}$ . The final recorded events pertaining to specific issues and problems under study are given by  $\{(\theta, \mathbf{x}(\theta), t)\}$ . The question then is a fundamental one in the area of observation and analysis of events: Which comes first, knowledge or time? In the *Tawhidi* worldview methodology, knowledge is primal as  $(\Omega, S)$  is the episteme. Time is derived from  $\theta \in (\Omega, S)$ . Thus,  $t = t(\theta)$ .

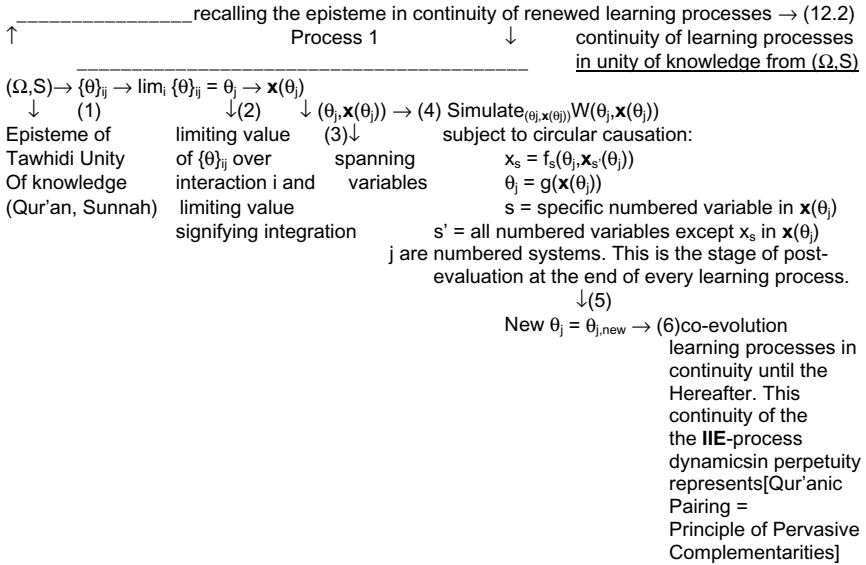
The formation of events  $\{(\theta, \mathbf{x}(\theta), t)\}$  that remain continuous and evolutionary across symbiotic learning in world-systems is now explained by the following evolutionary learning process. A process is taken over  $i = 1, 2, \dots, n$  number of interaction for  $j = 1, 2, \dots, m$  number of systems characterized by their entities and variables  $\{\mathbf{x}(\theta_{ij})\}$ . The *Tawhidi* episteme is continuously recalled to renew the learning processes in unity of knowledge following postevaluation of social well-being ( $W(\cdot)$ -function) in the simulation process. Note that every good action according to the *Qur'an* and the *Sunnah* is commenced by the supplication: "In the name of Allah, the Beneficent, and the Merciful."

These core dynamics of unity of knowledge defined by and discursively developed from  $(\Omega, S)$  are repeated across simulated interrelationships between knowledge-flows and the entities and variables of world-systems as characterized by their IIE-processes. These dynamics remain universal for all kinds of world-systems. We can therefore ignore the subscript " $j$ " signifying numbered world-systems. But when taken across world-systems, then Figure 12.1 shows complex IIE-processes between such coevolutionary domains.

In Figure 12.1, the postevaluation at the end of any IIE-process is done by simulation of the social well-being function,  $W(\cdot)$ , subject to circular causation between the variables, as shown in Figure 12.1. The social well-being function is the criterion for estimating the degree of unity of systemic knowledge gained between the entities and the variables in the social well-being function. Such indicators represent the good things of life according to the tenets of the *Qur'an* and the *Sunnah*. The interrelationships between them are driven by discursive and participatory processes. Such learning processes connect agents and entities. At the end of such agent-specific and entity-specific interrelationships arise the rules of Islamic law, the *shari'ah*. The discursive medium of participation between agents and variables appearing in the analytical form of  $W(\cdot)$ , which likewise represents the experience of the IIE-processes, is called the *shura* (*Qur'an*, Chapter 42). But in the IIE-process-oriented characterization, the *shura* must be induced by *Qur'anic* consciousness regarding unity of knowledge (monotheism). Such active consciousness that enables understanding, inculcation, and the



**Figure 12.1. Characterization of the Tawhidi learning processes in unity of knowledge and the world-system**



ability to cognize the application of the episteme of unity of knowledge is called *tasbih* (Qur'an 42, 49–53).

Mapping 1 in Figure 12.1 denotes derivation of fundamental rules from  $(\Omega, S)$ . This all-pervasive episteme of divine oneness, from which worldly rules and practically guided instruments are derived, is the Qur'anic law of monotheism. It is explained further by the guidance of the Prophet Muhammad as the principal teacher of Qur'anic monotheism to all the worlds. Subsequently, elements of  $(\Omega, S)$  are taken up for social discourse and understanding in respect of specific issues and problems under investigation.

Mapping 2 in Figure 12.1 represents policies, mechanisms, and identification of ways and means for enacting the fundamental Tawhidi episteme of unity of divine knowledge into actions in the world-systems for specific issues and problems under investigation. This kind of discursive and interactive medium involves the *shura* once it is induced by *tasbih*. A discursive process that does not invoke *tasbih* cannot recognize the endogenous power of the moral and ethical values and their knowledge-induced processes and worldly determinations. Only the *tasbih–shura* initiation involving specific issues and problems under investigation and their interconnections with widening domains of the world-systems endogenizes the individual and social preferences, productive menus, institutions and management, policies, and programs in the Islamic world-system.

Mapping 3 in Figure 12.1 is the formation of the paired variables that span the issues and problems under investigation in the *Tawhidi* world-system. The paired variables signify unity of knowledge generated from  $(\Omega, S)$  by organic learning, both intrasystem and intersystems, in the sense of a generalized knowledge-induced world-system spanned by  $\{(\theta, x(\theta), t)\}$ .

Mapping 4 in Figure 12.1 denotes the postevaluation stage that estimates the degree to which unity of knowledge has been attained intrasystem and intersystems by the previous learning processes in unity of knowledge. The simulation exercise points out the continuous learning processes of IIE that takes place by continuously recalling the episteme  $(\Omega, S)$  at every stage of systemic learning.

In the simulative postevaluation stage, circular causation shows the estimated values of the interconnected variables under the learning rules, policies, and programs arising from the formation of  $(\theta, x(\theta))$  in stage 3. There is no assertion of a completely unified world-system in the light of  $(\Omega, S)$ . Only dynamic improvement and reconstruction leading to higher levels of systemic unity enabled by organic learning are relevant.

Mapping 5 of Figure 12.1 denotes continuity of the interactive (stage 1), integrative (stage 1), and evolutionary (stage 4) dynamics of the complete one process of the learning phase. Thus, the *tasbih-shura* learning dynamics is carried into matter and mind complements by the IIE-process methodology as it is derived from and recalled by  $(\Omega, S)$ .

It is important to note that the estimated  $\theta$ -value in any learning process is averaged from the  $\theta$ -weights linked with the performance of the corresponding  $x(\theta)$ -values. But the  $\theta_{\text{new}}$ -value is derived from fresh discourse by recalling  $(\Omega, S)$  along the evolutionary learning experience in unity of knowledge.

The entire IIE-process dynamics is characterized by learning in unity of knowledge premised on  $(\Omega, S)$ . Besides, in every process, postevaluation by simulation of  $W(\cdot)$  subject to circular causation between the variables defining  $W(\cdot)$  measures the attained and reformulated strategies for evolution into higher levels of unity of knowledge and the unified world-system. In this way, the PPC is carried through by the IIE-process methodology in view of the *Qur'anic* paired universe. Pervasive complementarities are carried across intra- and inter-world-systems, given the specific issues and problems to investigate.

The total dynamics explained in Figure 12.1 comprise the universal and unique methodology of unity of knowledge arising from the perfectly and absolutely unified episteme of  $(\Omega, S)$ . This is the phenomenological model of *Tawhidi* unity of divine knowledge in relation to the world-system. Figure 12.1 shows that this kind of learning experience persists in perpetuity until the Hereafter. The resulting phenomenological methodology based on the monotheistic worldview is referred to as the *Tawhidi* String Relation (TSR). In the simplified form of the very large universe,

relational closure of TSR is given by

$$(\Omega, S)_{\text{Primordial}} \rightarrow \text{World-System } \{(\theta, \mathbf{x}(\theta))\} \rightarrow (\Omega, S)_{\text{Hereafter}} \tag{12.3}$$

In the complex form of intersystemic (1,2 of Figure 12.1), the unifying interrelationship expression (12.2) obtains the form shown in expression (12.3). The knowledge-induced intervariable circular causation can be developed. An intersystemic social well-being criterion can then be formulated. Details on these issues can be found elsewhere (Choudhury and Hoque, 2004). Furthermore, complex matrix forms can be developed. An example is the knowledge-induced dynamic coefficients input–output model of intersectoral flows of resources that remain complementary to each other according to the PPC. The learning dynamics of unity of knowledge as explained by pairing underlying the PPC characterize sustainable participatory development. The inter-world-system phenomenological model is summarized in expression (12.4).

$$\begin{array}{ccc}
 (\Omega, S)_{\text{Primordial}} \rightarrow & \boxed{\begin{array}{c} \text{World-System } \{(\theta, \mathbf{x}(\theta))\}_1 \\ \Downarrow \quad \Uparrow \\ \text{World-System } \{(\theta, \mathbf{x}(\theta))\}_2 \end{array}} & \dots \rightarrow (\Omega, S)_{\text{Hereafter}} \\
 (12.4) & & \\
 & & \tag{12.4}
 \end{array}$$

**12.8. The principles and instruments of Islamic political economy**

From our characterization of the Islamic world-system in respect of its infallible episteme  $(\Omega, S)$ , the precept of monotheism explaining systemic unity of knowledge forms the ultimate reference point. We will now specify this precept and its functions according to the *Tawhidi* phenomenological model to the field of Islamic political economy.

In respect of the problems of economics and finance as special cases, the embedded and unifying nature of organic relationships between economics, finance, and the social and moral orders must be formally understood, explained, formulated, and quantified for generating inferences. In this way, the epistemic core of monotheism of the *Qur'an* along with the law of divine unity and its various worldly implications gets integrated with the formal system modeling as an engineering ontology (Gruber, 1993; Choudhury and Hossain, 2007) generating evidences (ontic, see Sherover, 1972). Here we derive our formalism from the *Qur'an*, wherein this kind of tripartite integrated knowledge is shown to exist in continuous evolution across the knowledge–time–space dimension (*Qur'an*, 2:164).

This nature of investigating the worldly problems, such as of economics, finance, and social order, causes the study of every issue to be embedded in richly complex interrelations. The result then is the knowledge-induced political economy endowed by the endogenous nature of ethical action in it. In this sense, the study of embedded systems such as economics, finance,

and society by rigorous scientific means may be called Islamic political economy.

*Islamic political economy* then is the field that studies the embedded systems of circular causal *interrelationships* between variables and entities defining the over all social well-being criterion function. The circular causation relationships arise from the pairing implications found in the episteme of Islamic monotheism. Such circular causal relations are regenerated continuously as the knowledge-flows evolve. The knowledge-flows arising from the fundamental episteme induce the world-systems. The consequent learning processes that arise are enabled by the theory and the instrumentation of the Islamic law. They carry forward the episteme of Islamic monotheism into the ontological construction of the unified world-system. The result is attainment of pervasive complementarities and participatory relations. The purpose of the *shari'ah*, called the *maqasid as-shari'ah*, is thus attained progressively.

The processual order of knowledge formation depends on the nature of the state-variables that remain intrinsic to the social, economic, institutional, and scientific disciplines and by the evolution of unified interrelationships between these variables (entities). The inherent process of ethical transformation is tied to both the inherent nature of unified systems and the institutional rules and guidance that are necessary to generate relevant policies and instruments. All such knowledge-flows arise from the fundamental episteme of monotheism through the medium of discourse.

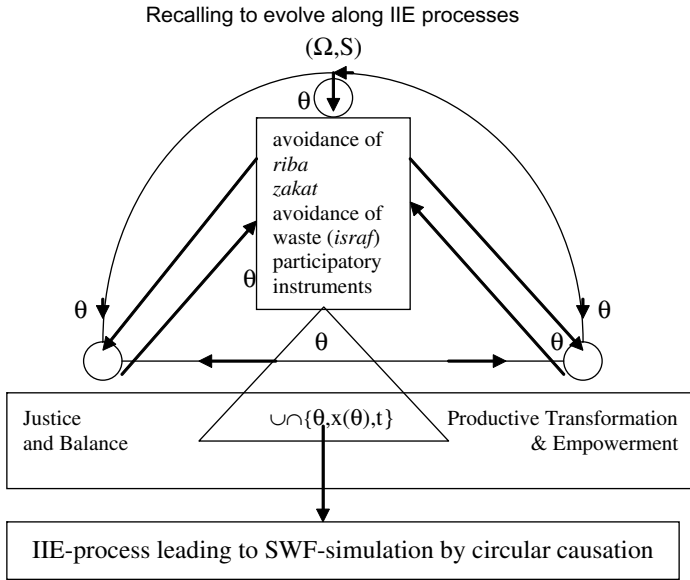
With this definition of Islamic political economy, we now launch our generalized system model for understanding the principles and instruments of Islamic political economy. [Figure 12.2](#) displays the circular causation interrelationships between principles and instruments of the Islamic political economy in the light of  $(\Omega, S)$ .

The essential basis of  $\theta$ -values comprises the attributes  $A = \{\text{unity, balance, purpose, well-being, change}\}$ . These values together form the elements of the *maqasid as-shariah* – the objectives of the *shari'ah*, the Islamic law.  $\theta$ -values as knowledge-flows then evolve by the medium of greater discursive diversity revolving around the *maqasid*. The discourse mechanism subsequently undertakes substantive investigation on the basis of  $(\Omega, S)$ . This is known as *ijtihad*.

For instance, evolving out of the *maqasid*-vector for  $\theta$ -values are subsidiary values, such as human resource induced by *tasbih* for examining world affairs and social participation. Such values are authenticated by  $(\Omega, S)$  in terms of wisdom (*hikma*) and community (*ummah*). Now in reference to [Figure 12.1](#), evolutionary  $\theta$ -values are caused by the unfolding of monotheistic consciousness and the world-system (*tasbih*).

Along with the advancement of  $\theta$ -values also revolves and evolves the vector of principal politico-economic instruments,  $I = \{\text{zakat, denial of financial interest, trading activities, avoidance of waste}\}$ . These are essential elements of the Islamic instrument vector according to  $(\Omega, S)$ .

**Figure 12.2. Circular causation between the principles and the instruments of Islamic political economy**



They are deduced from the injunctions of (Ω,S) via the discursive processes (*shura* with *tasbih*) of IIE-processes in the formation of  $\theta$ -values.

*Zakat* is annual fiscal levy of 2.5% of financial assets that remain idle. The levy of *zakat* is on the well-to-do Muslims. Its purpose is redistribution of income and wealth for attaining well-being of the Islamic community. Among such spending categories of *zakat* resource are the goals of poverty alleviation and heightened dissemination of the *Tawhidi* worldview. *Zakat* is mandatory payment on eligible Muslims. It is a part of the comprehensive *Qur'anic* meaning of charity, whereby *zakat* is established as a fund to alleviate social needs for the needy, including alleviating their poverty with productive transformation and empowerment.

Financial interest (*riba*) and trade (*tijara*) are treated as opposites in the *Qur'an* (2:275). *Riba* is forbidden and trade is encouraged. Consequently, trade as productive transformation for raising well-being is linked with acts of resource mobilization in the good and recommended things of life. Contrarily, financial interest is linked with withdrawal of potential resources into acts of trade and well-being. The meaning of saving (especially bank saving) now relates strictly to resource mobilization. Bank saving otherwise in macroeconomics is seen as a current withdrawal of funds away from the real economy and its direction into interest-based accumulation of capital (Ventelou, 2005).

Avoidance of waste forms the pedestal of overall sustainability in Islamic political economy. The *Qur'an* and the *Sunnah* forbid waste of every form. So much so that even in the doing of good there must be balance. Excessive charity and elevation of self and other are forbidden acts, for they lead into self-righteousness and altruistic egoism.

Productive transformation, resource mobilization, social engagement, and sustainability are processed by participatory instruments that promote trade and empowerment. Among the usual kinds of participatory financing instruments devised to gear resources into productive use of the good things of life raising well-being, are profit-sharing (*mudarabah* =  $M_1$ ), equity participation (*musharakah* =  $M_2$ ), and cost-plus pricing (*murabaha* =  $M_3$ ). There is nothing sacrosanct in these instruments. The principal character of Islamic financing instruments is to attain the *maqasid as-shariah*. There may be many more of such instruments as secondary financing instruments revolving around ( $M_1, M_2, M_3$ ).

Of late, a number of new perspectives have been added to the Islamic financing vector ( $I(\theta)$ -vector). Examples are additional instruments such as *sukuk* (participatory bonds), foreign trade financing, and unit trust (*amanah saham*) (Tables A12.1 and A12.2). See Table A12.3 in the appendix for further details. Yet a hybrid of  $M_1, M_2$ , and  $M_3$  has not been tried out as a financing instrument by Islamic financial institutions. Such an instrument can otherwise prove to be effective production and risk diversification outlets in respect of productive linkages between resource mobilization and the real sector.

The evolutionary  $\theta$ -induced vector of variables in Islamic political economy, finance, and society is  $x(\theta) = \{\text{social justice, economic productivity, empowerment, employment, real economy}\}$ . The  $I(\theta)$ -vector together with  $x(\theta)$ -vector forms the extended policy and market vector, with which the presence of the discursive medium of generating  $\theta$ -values establishes the polity–market circular causation. Simulation of the social well-being function is thus based on this tripartite circular causation interconnections and their evolutionary epistemology. The evolutionary event in Islamic political economy, finance, and society embedding is now described by  $\{(\theta, x(\theta), I(\theta), t)\}$  as a knowledge-induced evolutionary vector.

The discursive medium for choosing appropriate financial instruments in reference to  $(\Omega, S)$  together with the circular causation between market realities and the good things of life establishes the most important and distinctive aspects of Islamic political economy and financing. Consequently, the most distinctive principle that summarizes the entire perspectives of Islamic political economy, finance, and society is its participatory nature in the light of the *Qur'anic* universal pairing framework. From this singular premise is derived the PPC.

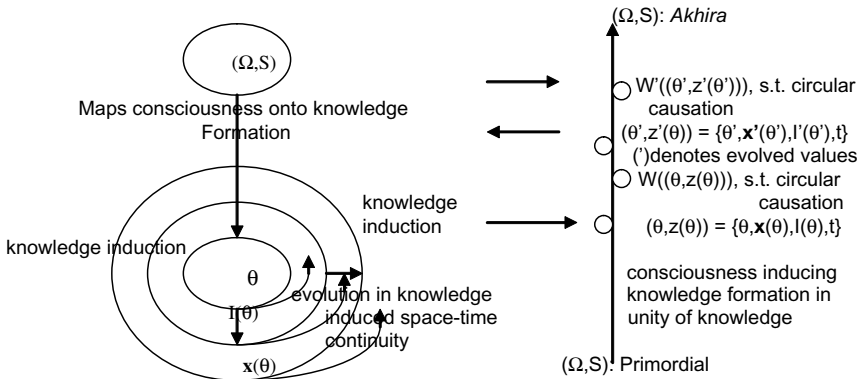
**12.9. Explaining the interactive, integrative, and evolutionary (IIE) dynamics of endogenous Islamic values, political economy, finance, and society**

Figures 12.2 and 12.3 bring out the IIE-process dynamics of the principles and the instruments of Islamic political economy, finance, and society induced by moral values as derived from  $(\Omega, S)$ .  $(\Omega, S)$  remains the exogenous episteme that continuously and pervasively generates the knowledge-flows of unity of knowledge. The functional mapping “g” from  $(\Omega, S)$  to the evolutionary domain of  $\theta$ -values is continued on while maintaining the continuous recalling of  $(\Omega, S)$ . Such evolutionary functional maps generate the associated instruments, starting from the most basis ones to diversified ones. The instruments affect the variables of the socioeconomic system. Financing instruments also remain evolutionary under the impact of evolutionary  $\theta$ -flows and their induced socioeconomic variables  $x(\theta)$ . Thus,  $\{(\theta, x(\theta))\}$  denotes evolutionary vectors. In the extended meaning of knowledge, space, and time, the evolutionary vector is  $\{(\theta, x(\theta), t)\}$ .

The evolution of  $\{(\theta, x(\theta), t)\}$  is shown by the second part of Figure 12.3 in social well-being simulation continuing until the Hereafter. Thus, the concept of socioeconomic sustainability in reference to the circular causation relations is conveyed by analytical correspondences between the two parts of Figure 12.3 as indicated by arrows flowing back and forth and upward and downward along the path of sustainability.

In Figure 12.3, the *Qur'an* (78:1–4) establishes Primordial  $(\Omega, S) \equiv Akhira = (\Omega, S)$ . Therefore, the Islamic world-system attains evolutionary equilibriums in the very large-scale closed topology, which is endowed with the essence of supercardinality (nondimension and nonmeasurability

**Figure 12.3. The IIE-processes in circular causation between the principles and the instruments of Islamic political economy**



$(\Omega, S)$ ), generates relations of organic symbiosis according to the divine law (Rucker, 1982).

$\theta = \theta(A)$ ;  $A = \{\text{unity, balance, purpose, well-being, change}\}$  characterizes the consciousness of *tasbih*, which evolves to higher levels. But consciousness can also fall to lower levels (*Qur'an*, 95:4–6).

$I(\theta) = \{\text{zakat, denial of financial interest, trading activities, avoidance of waste, participatory instruments}\}$ .

$x(\theta) = \{\text{social justice, economic productivity, empowerment, employment, real economy}\}$ .

Figure 12.3 results in the following form of the *Tawhidi* model of unity of knowledge in respect of the embedded Islamic political economy, finance, moral values, and the social order:

$$\text{Simulate}_{v(\theta)} W(\theta, z(\theta), t), z(\theta) = (x(\theta), I(\theta)).$$

s.t.

$$z_s = f_s(\theta, z_{s'}(\theta), t).$$

$$\theta = g(z(\theta), t) \tag{12.5}$$

$s$  denotes a specific  $s$ th variable in the vector  $z(\theta)$ .  $s'$  denotes all the numbered variables in the vector  $z(\theta)$  except the  $s$ th variable.

$\theta$  denotes the estimable knowledge-flows as ordinal values assigned as an average over the individual  $\theta$ -values, which are associated with the  $z(\theta)$ -vector. In this sense, the estimated ordinal  $\theta$ -value gives the simulated monotonic measure and relationship of social well-being in terms of the desired levels of complementarities between the  $z(\theta)$ -vector elements in accordance with choices of *maqasid as-shari'ah* goods and services.

Values of  $\theta'$  are the simulated new values of knowledge-flows arising from the end of the previous process of learning in unity of knowledge. The choice of  $\theta'$  is invariably linked with a revision and extension of the  $z(\theta')$ -vector as shown in Figure 12.3 toward establishing the PPC by progressive learning.

The presence of the time-variable in the  $z$ -vector denotes the recording moment of events undergoing the IIE-learning processes with circular causation between endogenous transformation of markets, polity, and society as embedded systems. We can note that by continuing on the circular causation relations of the system (12.5), the time-value is expressed in terms of the other variables including  $\theta$ -value. We do not estimate this relationship. It is simply indicative of the fact that time as continuous flow, positions the occurrence of attained relationships between knowledge-flows and the knowledge-induced variables pertinent to the issues under study.

Consequently,  $t$  is a determined thing in measuring the state of socio-scientific change generated by knowledge-flows. Likewise,  $\theta'$ -flows are newly evolved ordinal knowledge-flows. They are evolved in the light of



necessary changes in the  $z(\theta')$ -vector reflective of the degrees of complementarities gained between the component variables. But  $\theta$ -value when originally derived from  $(\Omega, S)$  comprises the fundamental rules and guidance. Upon such primordial  $\theta$ -value rest all further evolutions of  $\theta'$ -values.

### ***12.10. Contrast between Islamic and mainstream thought in regard to political economy***

A cursory and incomplete examination of the system (12.5) points out that many of the theories of mainstream economics are thoroughly challenged and replaced by new ideas in the case of authentic Islamic thinking. We will examine only a few of these here. Then too the analytical treatment is not extensive.

In mainstream development economics, the core assumption of resource scarcity leading to optimization of the growth function relegates the productive utilization of labor and capital to the postulate of marginal rate of substitution. Thereby, any growth model shows that economic efficiency (e.g., economic growth) competes with social justice (distribution). The best that mainstream development economics has done in this case to bridge the gap between distributive equity and economic efficiency is by introducing institutional policies that would enforce exogenous policies to reduce the conflicting feature of the development model.

Human resource development is used as an inducing factor in this case. But since human resource allocation itself is costly, the recovery of the cost necessarily looks at its complementary variable, which is economic efficiency that would reduce the cost of human resource development. Consequently, although the assumption of diminishing returns to scale is abandoned, yet the marginal rate of substitution underlying resource scarcity and optimization of the growth model with human capital input remains extant (Romer, 1986).

The endogenous way of instilling values that would cause learning by participation between labor, capital, polity, and markets is unknown in economic theory. This is a problem deeply entrenched in economics, finance, and social theory. Heilbroner and Milberg (1995) refer to it as the crisis of vision. Soros (2000) refers to the same problem as failure to understand the reflexive relationships in the financial market as the cause of uncontrollable financial volatility. Choudhury and Bhatti (2006) have referred to the problem of measurement of financial volatility as a multidimensional one, of which mainstream financial theory does not have an adequate methodology to address.

Complex models of financial engineering continue to accept the traditional risk–return assumption of rational choice. In doing so, such models treat all institutional interventions and policies as exogenous

forces. Endogenous nature of preference behavior between the multi-dimensional entities is left out. For example, in endogenous preference formation according to Becker (1989), the assumptions of economic rationality and utility maximization prevail.

Social choices and wage determination provide another example. They are subjected to social welfare maximization, which is a prototype of utility maximization. At best a cooperative game is invoked between labor and capital with institutional enforcement to realize a final determination (Shubik, 1988). But the methodology is at a loss when the underlying utilitarian behavior is made to depend on optimization and the axiom of economic rationality. Amartya Sen (1977) points out the futility of such approaches in arriving at the endogenous nature of interrelationships between economic and social forces.

Returning now to the implications of expression (12.5), we note that there is no such exact theory, which once unbarred, remains the last word in economic, financial, and social modeling. For example, wages on the side of employment and growth on the side of economic efficiency are endogenously integrated through the learning dynamics of the coefficients of the model. Such coefficients are simulated in the well-being function, subject to circular causation relations.

Wage determination in the circular causation relations with learning coefficients is not solely the result of marginal productivity of labor in the production function. Constrained maximization of economic growth and social welfare function is not taken separately from the redistribution problem in the presence of *zakat*, cooperation, and sustainability of  $\theta$ -values. Consequently, the core axiom of resource scarcity, the goal of optimization, and independence of the variables in the social welfare function of mainstream economics are all replaced by endogenous knowledge-induced variables and coefficients that are estimated by circular causation. Structural changes along the process of evolutionary epistemology are caused by sustainability of the IIE-learning processes. They are not the result of terminal steady-state optimal points of choices and resource allocation. An example here is the Pareto optimal equilibrium resource allocation state, which is untenable in Islamic political economy.

In the midst of all these, the idea of wage determination is linked to the classical market exchange in which the demand and supply of labor, land, capital, and other factors are endogenously induced by *zakat*, cooperative financing instruments, avoidance of interest rates, and continuous regeneration of resources, while discourse continues along paths of evolutionary epistemology carrying forward the IIE-processes. The same idea applies to rates of return on capital and other resources. The simulated PPC washes the entire system of coevolved relations. It thoroughly replaces the competing and conflicting picture of resource allocation by the idea of continuous regeneration of resources through learning and cooperation. Fitzpatrick (2003) writes about such simulative processes.

On the matter of coexistence between economic efficiency and social justice, similar analytical dynamics hold for the sustainable development menu. In the welfare function of mainstream economics, the nature of technological change and policy implementations to remedy the marginalist substitution between the goals of social justice and economic efficiency remain exogenously driven. Consequently, their implementation becomes costly and unsustainable in socioeconomic development.

On the other hand, if technology is endogenous by way of participatory dynamics, it must be codetermined and be amenable to the prevalent level of human resources. Consequently, the participants of the social order codetermine appropriate technological change in the light of guidance on endogenously ethical preference transformation. This is the function of unification between different segments of society by way of participation in the sense of systemic unity guided by values and ethics.

The social welfare function of mainstream economics is not premised on such considerations. Contrarily, the social well-being function as the measure of degrees of unity of knowledge in the system addresses the question of endogenous ethics, preference change, and embedded structural change.

### ***12.11. Islamic banking statistics and interpretation in the light of $(\Omega, S)$***

In what follows we will investigate to what extent the systemic unity between socioeconomic variables is reflected in the Islamic banking statistics. A critical examination on this front will enable us to inquire on the reformative potential of Islamic banking for attaining a truly Islamicization agenda of change for the world-nation of Islam (Ummah). Without this case being reflected in the workings and thinking regarding Islamic banks, we will conclude that existing Islamic banks cannot be any different from the conventional ones on grounds of capital formation and capitalist global objectives. They need reformation.

The only objective of Islamic banks would then be resource mobilization into *shari'ah*-compliant outlets as opposed to interest-bearing ones. But this is not sufficient as a criterion for the working of the revolutionary paradigm of unity of knowledge that emanates from  $(\Omega, S)$  and applies to the world-system. Here economics, finance, and banking relationships are taken up as a specific example.

### ***12.12. Findings on sectoral allocation of investments***

#### ***12.12.1. Islamic banks***

Islamic banks in Malaysia have experienced an incipient balance in resource allocation by sectors. We consider the prime Islamic bank in

Malaysia. Resource allocation between agriculture and manufacturing showed the following kinds of statistics. Agriculture/manufacturing ratio ranged between 16 and 20% during the time period December 2002–March 2003. But between June 2003 and December 2004, the agriculture/manufacturing percentage decreased to 18% and then hovered around 13–14%. Between March 2005 and March 2006, this sectoral allocation percentage increased between 22 and 24% and climbed to 35.52% in June 2006.

By a further disaggregation of the statistics on sectoral allocation of investments of Islamic Bank Malaysia, it is found that a mere 2% was invested in agriculture between December 2002 and December 2004. This increased to an unattractive 3% between March 2005 and June 2006. On the other hand, the investment allocations in the manufacturing sector fluctuated between 18.12% in December 2002 and 14.07% in June 2005. Thereafter, the percentage declined to 9.01% in June 2006.

These trends in sectoral allocation of investments indicate a minor impact of the Islamic Bank Malaysia on sectoral financing of the productive sectors. Most of the sectoral investments went into service and tertiary sectors, which showed an increasing allocation hovering around 85% on the average between December 2002 and June 2006; and remained in an increasing trend.

### **12.12.2. Commercial banks**

Agricultural/manufacturing-relative percentage allocation hovered around 51% between December 2002 and March 2004. The same percentage allocation declined to around 40% between June 2004 and December 2004. It further declined and hovered around 35% between March 2005 and March 2006. The declining trend continued on to 25.30% in June 2006.

On examining at disaggregate levels, we note that percentage allocation of investments in the agricultural sector by Malaysian commercial banks remained around 6% between December 2002 and June 2004. The agriculture/manufacturing percentage allocation declined to around 4% between September 2004 and March 2006, declining thereafter to 3.38% in June 2006.

In the manufacturing sector, percentage sectoral allocation of the total sectoral investments by Malaysian commercial banks showed approximately 10 and 12% between December 2002 and March 2006. It increased to 13.36% in June 2006.

The picture on investment allocation for the productive sectors is similar for Malaysian Islamic and commercial banks. There is poor emphasis on the productive sectors and a disproportionate allocation of investments between the agricultural and manufacturing sectors. Much of the sectoral allocations are taken up by the tertiary, services, and financial sectors. The implication of such sectoral investment allocations is that the banking

sector is focusing on sectors that create wealth out of short-term financing outlets at the expense of a combination of short-run, medium-, and long-term investments to support productive transformation.

Without such productive transformation, it has become increasingly difficult to operate a robust Islamic financing portfolio. This is despite the fact that an increasing amount of Islamic financial outlets are claimed to be flowing into the Kuala Lumpur Stock Market. With financial mobilization remaining concentrated in the service, tertiary, and financial sectors of the Malaysian economy, the Islamic development financing ideas for socio-economic development is increasingly failing. It is also increasingly difficult to move into a truly Islamic transformation while promoting financial globalization with simply the narrow objective of maximizing shareholders' wealth portfolio.

### ***12.13. Investment allocations according to financing instruments***

#### ***12.13.1. Islamic banks***

The above findings on the sectoral irrelevance of Islamic development transformation are supported by the statistics on financing instruments. *Mudarabah* (profit-sharing) and *musharakah* (equity financing) as the principal joint venture financing instruments and drivers of Islamic financing have received marginal attention in favor of *murabaha* (cost-plus pricing) and the secondary financing instruments. *Murabaha* and the secondary financing instruments (see footnote of Table A12.3) are overly emphasized. Yet these secondary instruments are questionable in Islamic perspectives. Their financial evaluation depends centrally on the concept of time-value of money (Rosly, 2005), which is a *riba* (interest)-based method of asset valuation.

The given Islamic banking statistics show that similar secondary financing instruments are emulated by commercial banks as well. They are therefore subjected to all the ramifications of commercial interest, not having any ethical and social meanings in the profit-making exercise. One of the consequences of the mainstream commercial way of the inherent project valuation with deferred payments and financing schemes is the use of risk and return methodology. This approach to project valuation of futures brings into Islamic valuation methods all the ramifications of expected utility maximization, the methodological implications of which are untenable in the case of Islamic resource mobilization. The secondary financing instruments therefore cannot have legitimate influence on Islamic transformation of the socioeconomic system (Choudhury and Hoque, 2004).

The Islamic transformation dynamics are otherwise explained by evolutionary circular causation interrelationships between money, finance, and the real economy in the good things of life. The sectoral circular causations are sustained by sectoral linkages as the systemic meaning of

unity of learning systems in the light of the *Tawhidi* epistemology. This episteme is applied to the specific problem of systemic unity of knowledge, and thereby to organic symbiosis between the socioeconomic variables overarching money, finance, and the real economy.

Table A12.4 amply testifies to our observations made here. Both Islamic and commercial banks have increased their investment allocations into secondary financing instruments from 74.45% (Islamic banks) and 75.80% (commercial banks) in June 2003 to 90.26 and 95.29%, respectively. For the same time period, the *murabaha* financing by Islamic banks decreased from 22.80 to 9.22%, whereas for commercial banks such financing increased from about 2 to 4.71%.

These findings amply testify to the fact that Islamic banks in Malaysia are merely competing with commercial banks to gain market shares by using secondary financing instruments that are questionable as *shari'ah*-compliant financing instruments. On the contrary, the special Islamic financing instruments of *mudarabah*, *musharakah*, and to an extent *murabaha*, and the hybrid between these, which can offer prospects for short-, medium-, and long-term sustainable development and transformation into an Islamicized socioeconomic unified system of money, finance, and developmental relations, are being left out of focus.

#### 12.14. Conclusion

A wide gap remains between the truly Islamic methodological worldview and certain misconstrued ideas, methods, and directives to establish Islamic outlets and Islamic economic and financial thinking. This observation flowing out of this chapter, including the results explained in the statistical appendix, do not support the kind of momentum expected of the Malaysian program of Islamicization in recent times. Rather, this chapter has pointed out that the misconstruing of the Islamic worldview and its application to the Islamic configuration must be changed for what is truly Islamic. This more authentic worldview is premised on the epistemology of *Tawhid* as it exists in the realm of belief and is implicated into positive socioeconomic action by logical formalism flowing out of the *Qur'an* and the *Sunnah*.

This was our formalism of the learning world-system in which there are embedded issues and problems of “everything.” This TSR as we termed it is summarized as

$$[(\Omega, S) = \text{Primordial}] \Leftrightarrow \text{World-System } [\theta] \Leftrightarrow [(\Omega, S) = \text{Akhira}] \quad (12.6)$$

The empirical evidence of Islamic banking industry in Malaysia, which is considered as the most successful Islamic banking today, establishes our concerns at the conceptual level. Inadequacy exists in the prevalent thinking in Islamic economics, finance, and socioeconomic development

according to the *Tawhidi* methodological worldview of unity of knowledge. This methodological orientation of the Islamic worldview can otherwise mark the ultimate foundation of Islamic thought and application. Within the resulting world-system is the specific area of Islamic economics, finance, and socioeconomic development as symbiotic learning and unified subsystems. This is also the domain of inquiry in Islamic political economy and world-system. To attain the unique and universal epistemological foundation of the *Tawhidi* worldview, both scholarship and practice must jointly learn so as to rectify the existing Islamic misguidance. Yet the revisions ought to be done without rupturing the progress on Islamicization that has been accomplished thus far.

### ***Statistical appendix***

#### ***Regression results on the efficiency of Islamic and commercial investments by sectors***

1.  $\ln(\text{Ag}/\text{tot}) = a + b \cdot t$
2.  $\ln(\text{Mfg}/\text{tot}) = a + b \cdot t$
3.  $\ln(\text{Other}/\text{tot}) = a + b \cdot t$
4.  $\ln(\text{Ag}/\text{Mfg}) = a + b \cdot t$

#### ***Islamic banks in Malaysia***

1.  $\ln(\text{Ag}/\text{tot}) = 0.901 + 0.0073 \cdot t$   
 $t$ -stats (7.17) (0.53)  
 $R^2 = 0.021$ ; Durbin–Watson = 0.8828

The estimated result shows that the already low percentage of total investment in the agricultural sector made by Islamic banks in Malaysia changed by a mere 0.73% quarterly between 2002 and 2006.

2.  $\ln(\text{Mfg}/\text{tot}) = 2.92 - 0.0365 \cdot t$   
 $t$ -stats (61.96) (7.04)  
 $R^2 = 0.792$ ; Durbin–Watson = 0.9776

Between 2002 and 2006 by quarters, Islamic bank allocation of investment in the manufacturing sector declined by 3.65% on a trend. Thus, between the agricultural and the manufacturing sectors, there was a distinct marginal substitution during the stated time period. Such a result is contrary to the PPC of investment by sectors along the expansion path of the economy as should be reflected in reference to the episteme of unity of knowledge of the *Tawhidi* worldview in its relationship with the world-system,

**Table A12.1. Financing by sector (millions of MRinggit)**

	Total	Agricultural, Manufacturing, and other sectors related		
		Agric/Total	Mfg/Total	Other/Total
Jun 2006				
Islamic banks	35,378.9	1,138.5	3,188.9	31,051.5
Commercial banks	34,159.8	1,557.5	4,563.2	28,039.1
Mar 2006				
Jun 2006				
Islamic banks	21,516.2	573.3	2,346.8	18,596.1
Commercial banks	45,675.3	1,777.5	5,213.6	38,684.2
Dec 2005				
Islamic banks	20,627.1	531.4	2,368.5	17,727.2
Commercial banks	45,398.5	1,809.1	5,115.6	38,473.8
Sep 2005				
Islamic banks	20,022.0	647.5	2,270.8	17,103.7
Commercial banks	43,960.0	1,723.1	4,578.3	37,658.6
Jun 2005				
Islamic banks	15,619.0	493.9	2,198.1	12,927.0
Commercial banks	45,378.0	1,645.2	4,636.8	39,096.0
Mar 2005				
Islamic banks	15,246.0	495.7	2,249.0	12,501.3
Commercial banks	36,524.0	1,387.1	3,818.4	31,318.5
Dec 2004				
Islamic banks	11,449.0	241.6	1,687.7	9,519.7
Commercial banks	38,803.0	1,753.7	4,203.3	32,846.0
Sep 2004				
Islamic banks	10,813.5	233.5	1,587.4	8,992.6
Commercial banks	32,075.7	1,655.5	3,873.3	26,546.9
Jun 2004				
Islamic banks	10,511.1	207.7	1,496.3	8,807.1
Commercial banks	25,397.8	1,519.5	3,773.3	20,105
Mar 2004				
Islamic banks	10,276.3	209.6	1,553.6	8,513.1
Commercial banks	22,854.7	1,455.5	2,717.7	18,681.5
Dec 2003				
Islamic banks	9,764.5	202.2	1,529.7	8,032.6
Commercial banks	22,324.3	1,385.2	2,644.2	18,294.9
Sep 2003				
Islamic banks	9,544.8	186.1	1,395.0	7,963.7
Commercial banks	21,209.2	1,074.8	2,216.4	17,918.0
Jun 2003				
Islamic banks	9,487.0	276.8	1,538.9	7,671.3
Commercial banks	19,538.2	1,216.7	2,178.7	16,142.8
Mar 2003				
Islamic banks	9,369.4	298.2	1,486.7	7,584.5
Commercial banks	18,115.0	1,147.8	2,137.2	14,830.0
Dec 2002				
Islamic banks	9,159.9	267.3	1,659.5	7,233.1
Commercial banks	16,706.4	1,096.9	2,116.1	13,493.4



**Table A12.2. Ratios by sectors (percentages)**

	Total	Agricultural, manufacturing, and other sectors related		
		Agric/Total	Mfg/Total	Other/Total
Jun 2006				
Islamic banks	100	3.20	9.01	87.76
Commercial banks	100	3.38	13.36	82.08
Agric/Manufacturing				
Islamic banks	35.52			
Commercial banks	25.30			
May 2006				
Islamic banks	100	2.66	10.91	86.43
Commercial banks	100	3.92	11.41	84.67
Agric/Manufacturing				
Islamic banks	24.38			
Commercial banks	34.38			
Dec 2005				
Islamic banks	100	2.57	11.48	85.94
Commercial banks	100	3.98	11.27	84.75
Agric/Manufacturing				
Islamic banks	22.39			
Commercial banks	35.31			
Sep 2005				
Islamic banks	100	3.23	11.34	85.43
Commercial banks	100	3.91	10.41	85.68
Agric/Manufacturing				
Islamic banks	28.48			
Commercial banks	35.56			
Jun 2005				
Islamic banks	100	3.16	14.07	82.77
Commercial banks	100	3.63	10.22	86.15
Agric/Manufacturing				
Islamic banks	22.46			
Commercial banks	35.52			
May 2005				
Islamic banks	100	3.25	14.75	82.00
Commercial banks	100	3.80	10.45	85.75
Agric/Manufacturing				
Islamic banks	22.03			
Commercial banks	36.36			
Dec 2004				
Islamic banks	100	2.11	14.74	83.15
Commercial banks	100	4.52	10.83	84.65
Agric/Manufacturing				
Islamic banks	14.31			
Commercial banks	41.74			
Sep 2004				
Islamic banks	100	2.16	14.68	83.16
Commercial banks	100	5.16	12.07	82.77
Agric/Manufacturing				
Islamic banks	14.71			
Commercial banks	42.75			

**Table A12.2. (Continued)**

	Total	Agricultural, manufacturing, and other sectors related		
		Agric/Total	Mfg/Total	Other/Total
Jun 2004				
Islamic banks	100	1.98	14.23	83.79
Commercial banks	100	5.98	14.86	79.16
Agric/Manufacturing				
Islamic banks	13.91			
Commercial banks	40.24			
May 2004				
Islamic banks	100	2.04	15.12	82.84
Commercial banks	100	6.37	11.89	81.74
Agric/Manufacturing				
Islamic banks	13.49			
Commercial banks	53.57			
Dec 2003				
Islamic banks	100	2.07	15.67	82.26
Commercial banks	100	6.20	11.84	81.96
Agric/Manufacturing				
Islamic banks	13.21			
Commercial banks	52.36			
Sep 2003				
Islamic banks	100	1.95	14.61	83.44
Commercial banks	100	5.07	10.45	84.48
Agric/Manufacturing				
Islamic banks	13.34			
Commercial banks	48.52			
Jun 2003				
Islamic banks	100	2.92	16.22	80.86
Commercial banks	100	6.22	11.15	82.63
Agric/Manufacturing				
Islamic banks	18.00			
Commercial banks	55.78			
May 2003				
Islamic banks	100	3.88	15.87	80.95
Commercial banks	100	6.34	11.80	81.86
Agric/Manufacturing				
Islamic banks	20.00			
Commercial banks	53.73			
Dec 2002				
Islamic banks	100	2.91	18.12	78.97
Commercial banks	100	6.57	12.67	80.76
Agric/Manufacturing				
Islamic banks	16.06			
Commercial banks	51.85			

$$3. \ln(\text{Other}/\text{tot}) = 4.38 + 0.00543 \cdot t$$

$$t\text{-stats} \quad (581.21) \quad (6.56)$$

$$R^2 = 0.768; \text{ Durbin-Watson} = 1.1561$$

The estimated result shows that much of the investment is diverted away from the agricultural and manufacturing sectors into the capital market and service sector in Malaysia during the period 2002 and 2006 by quarters. Yet the growth of allocation in “Other Sector” is a mere 0.543% on a trend during the specified time period. Again this is a sign of financial diversion from the productive sectors in the interest of reaping speculative returns in this sector. Thereby, the efficiency of Islamic banks is hampered by the nature of their investment pattern for the sake of earning profits to satisfy shareholders’ demand.

$$4. \ln(\text{Ag}/\text{Mfg}) = 2.54 + 0.0481 \cdot t,$$

$$t\text{-stats} \quad (20.27) \quad (3.49)$$

$$R^2 = 0.4840; \text{ Durbin-Watson} = 0.8109$$

By rewriting the above expression in the form

$$\ln(\text{Ag}/\text{Mfg}) = 2.54 + 0.0481 \cdot t,$$

and differentiating this with respect to “ $t$ ” we obtain in the net growth rate ( $g(\cdot)$ ) form we obtain,  $g(\text{Ag})-g(\text{Mfg}) = 0.0481$ .

This expression suggests that for there to be complementarities between the agricultural and manufacturing sectors (the productive sectors), two conditions must be satisfied according to this result. First, the growth rates of the agricultural and manufacturing sectors must coevolve positively. Second, a margin of 4.81% must be given to agricultural sector over the growth rate of manufacturing sector. These are issues of structural change and are best resolved by discursive experimentation and appropriate learning, leading to policies for reconstructing the relationship between the productive sectors. However, because of the tilt of investments toward the nonproductive sectors, we do not presently notice the structural change to be occurring through the expected actions of Islamic banks in Malaysia.

### ***Commercial banks in Malaysia***

A similar kind of statistical analysis and politico-economic inferences can be derived from the results for commercial banks. There seems no great difference between the functioning of Islamic banks from the commercial banks in terms of allocation of investment funds between the economic sectors.

The following results testify to that fact:

$$1. \ln(\text{Ag}/\text{tot}) = 2.01 - 0.0568 \cdot t$$

$$t\text{-stats} \quad (25.65) \quad (-6.60)$$

$$R^2 = 0.770; \text{ Durbin-Watson} = 1.8944$$

$$2. \ln(\text{Mfg}/\text{tot}) = 2.47 - 0.00256 \cdot t$$

*t*-stats (42.87) (-0.40)  
 $R^2 = 0.012$ ; Durbin–Watson = 1.1599

$$3. \ln(\text{Other}/\text{tot}) = 4.40 + 0.00315 \cdot t$$

*t*-stats (362.16) (2.36)  
 $R^2 = 0.2990$ ; Durbin–Watson = 1.0255

$$4. \ln(\text{Ag}/\text{Mfg}) = 4.10 - 0.0461 \cdot t$$

*t*-stats (87.52) (-8.95)  
 $R^2 = 0.8600$ ; Durbin–Watson = 2.0300

***Regression results on the efficiency of Islamic and commercial banking investments by financial instruments***

Statistical interpretations for the distribution of investments by financing instruments are similar to those for sectoral allocation of investment. Besides, the pattern of such allocation was similar between Islamic and commercial banks in Malaysia during the period 2002–2006 by quarters. The inference drawn goes strongly against the expected Islamic mode of financing in participatory development financing instruments and in favor of secondary financing instruments, which have doubtful legitimacy as Islamic investment venues in view of their management approach in Islamic banks. These have applications that are not different from the time-valuation methods, which commercial banks practice at large.

Paradoxically, commercial banks appear to enjoy the cost-plus pricing mode of financing more than Islamic banks. This brings out the incipient decline in Islamic financing instruments by Islamic banks, while the cost-plus pricing method of Islamic financing instrument is questionable as it is presently practiced in the economy-wide case. The implication is damaging for Islamic banks in the perspective of the Islamic call for socioeconomic development, provision of the good things of life, and establishing a participatory economic, financial, and social system along with pertinent policy measures so embedded in this kind of systemic unification framework vis-à-vis the Islamic episteme of unity of knowledge according to the precept of oneness of the divine law and the world-system.

The further implication of the statistical results on a trend basis for the stated time period is that neither Islamic banks nor commercial banks played an identifiable role in productive transformation of the Malaysian economy. All the contribution to share value and economic growth came from the secondary financial markets. In the end, a significant substitution of resources took place in favor of the financial sector and financing instruments away from productive possibilities. These are unhealthy signs of a looming bubble in the economy, like the one that was faced by Malaysia during 1994–96 causing the financial crunch then (Jomo, 1992; Ali, 1992).

**Table A12.3. Financing by instruments (millions of MRinggit)**

	Total	$M_1$	$M_2$	$M_3$	Other sectors
Jun 2006					
Islamic banks	35,378.9	41.9	141.0	3,262.1	31,933.9
Commercial banks	34,159.9	0.0	0.0	1,609.7	32,550.2
Mar 2006					
Islamic banks	21,516.2	10.6	122.6	2,507.2	18,875.8
Commercial banks	45,675.3	0.0	21.6	2,074.4	43,579.3
Dec 2005					
Islamic banks	20,627.1	10.8	50.2	2,526.2	18,039.9
Commercial banks	45,398.5	0.0	136.3	2,062.4	43,199.8
Sep 2005					
Islamic banks	20,022.0	11.1	50.2	2,422.7	17,538.0
Commercial banks	43,960.0	0.0	138.1	1,944.2	41,877.7
Jun 2005					
Islamic banks	15,619.0	11.5	50.2	2,719.6	12,837.7
Commercial banks	45,378.0	0.0	155.3	1,800.9	43,421.8
Mar 2005					
Islamic banks	15,246.0	11.5	50.3	2,671.8	12,512.4
Commercial banks	36,524.0	0.0	155.6	1,471.3	34,897.1
Dec 2004					
Islamic banks	11,449.0	36.3	50.3	2,241.8	9,120.6
Commercial banks	38,803.0	0.0	168.8	1,804.4	36,829.8
Sep 2004					
Islamic banks	10,813.5	36.6	50.4	2,130.3	8,596.2
Commercial banks	32,075.7	0.0	170.5	1,537.7	30,367.5
Jun 2004					
Islamic banks	10,511.1	36.3	50.4	2,078.2	8,346.2
Commercial banks	25,397.8	0.0	172.3	1,154.2	24,071.3
Mar 2004					
Islamic banks	10,276.3	37.2	52.2	2,353.0	7,886.1
Commercial banks	22,854.7	0.0	173.2	823.6	21,857.9
Dec 2003					
Islamic banks	9,764.5	37.8	52.8	2,194.4	7,479.5
Commercial banks	22,324.3	0.0	184.2	823.1	21,317.0
Sep 2003					
Islamic banks	9,544.8	40.7	220.9	2,107.8	7,175.4
Commercial banks	21,209.2	0.0	185.7	608.7	20,414.8
Jun 2003					
Islamic banks	9,487.0	40.2	221.1	2,163.0	7,062.7
Commercial banks	19,538.2	0.0	184.2	453.2	18,900.8

For Islamic bank investments:

$M_1$ : *mudarabah* financing;  $M_2$ : *musharakah* financing;  $M_3$ : *murabaha* financing.

Other: *bai bithaman ajil* + *ijara summa al bai* + *ijara* + *istisna* + other secondary financing (e.g., *sukuk*).

*bai bithaman ajil*: sale with deferred payments.

*ijara summa al bai*: two-pronged contract, namely, the contract of lease (*al-ijarah 'ain*); and the contract of sale (*al-bay*).

*ijara*: rent.

*istisna*: deferred delivery of sale on present payment for it fully or partially.

*sukuk*: real-asset bonds.

**Table A12.4. Ratios by financing instruments (percentages of total)**

	Total	$M_1$	$M_2$	$M_3$	Other sectors
Jun 2006					
Islamic banks	100	0.12	0.40	9.22	90.26
Commercial banks	100	0.00	0.00	4.71	95.29
Mar 2006					
Islamic banks	100	0.05	0.57	11.65	87.73
Commercial banks	100	0.00	0.05	4.54	95.41
Dec 2005					
Islamic banks	100	0.05	0.24	12.25	87.46
Commercial banks	100	0.00	0.30	4.54	95.16
Sep 2005					
Islamic banks	100	0.05	0.25	12.10	87.60
Commercial banks	100	0.00	0.31	4.42	95.27
Jun 2005					
Islamic banks	100	0.07	0.32	17.41	82.20
Commercial banks	100	0.00	0.34	3.97	95.69
May 2005					
Islamic banks	100	0.08	0.33	17.53	82.06
Commercial banks	100	0.00	0.43	4.03	95.54
Dec 2004					
Islamic banks	100	0.32	0.44	19.58	76.66
Commercial banks	100	0.00	0.44	4.65	94.91
Sep 2004					
Islamic banks	100	0.34	0.47	19.70	79.49
Commercial banks	100	0.00	0.53	4.79	94.68
Jun 2004					
Islamic banks	100	0.35	0.47	19.77	79.41
Commercial banks	100	0.00	4.68	4.54	94.78
May 2004					
Islamic banks	100	0.36	0.51	22.90	76.23
Commercial banks	100	0.00	0.76	3.61	95.63
Dec 2003					
Islamic banks	100	0.39	0.54	22.48	76.59
Commercial banks	100	0.00	0.83	3.69	95.48
Sep 2003					
Islamic banks	100	0.43	2.32	22.08	75.17
Commercial banks	100	0.00	0.88	2.87	96.25
Jun 2003					
Islamic banks	100	0.42	2.33	22.80	74.45
Commercial banks	100	0.00	0.94	2.32	75.80

**Regression equations and estimates**

1.  $\ln(M_1/\text{tot}) = a + b \cdot t$
2.  $\ln(M_2/\text{tot}) = a + b \cdot t$
3.  $\ln(M_3/\text{tot}) = a + b \cdot t$
4.  $\ln(\text{Other}/\text{tot}) = a + b \cdot t$

**Islamic Banks in Malaysia**

$$1. \ln(M_1/\text{tot}) = 70.4 - 0.00188 \cdot t$$

$$t\text{-stats} \quad (3.51) \quad (-3.61)$$

$$R^2 = 0.4260; \text{ Durbin-Watson} = 1.4404$$

$$2. \ln(M_2/\text{tot}) = 41.6 - 0.00110 \cdot t$$

$$t\text{-stats} \quad (1.90) \quad (-1.93)$$

$$R^2 = 0.5149; \text{ Durbin-Watson} = 1.45964$$

$$3. \ln(M_3/\text{tot}) = 32.8 - 0.000782 \cdot t$$

$$t\text{-stats} \quad (5.53) \quad (-5.06)$$

$$R^2 = 0.8370; \text{ Durbin-Watson} = 1.46165$$

$$4. \ln(\text{Other (Islamic)}/\text{tot}) = -2.09 + 0.000169 \cdot t$$

$$t\text{-stats} \quad (-3.19) \quad (9.89)$$

$$R^2 = 0.9510; \text{ Durbin-Watson} = 2.48936$$

**Commercial Banks in Malaysia**

$$1. \ln(M_1/\text{tot}) = 70.4 - 0.00188 \cdot t$$

$$t\text{-stats} \quad (3.51) \quad (-3.61)$$

$$R^2 = 0.7320; \text{ Durbin-Watson} = 1.4404$$

$$2. \ln(M_2/\text{tot}) = 0.714 - 0.211 \cdot t$$

$$t\text{-stats} \quad (1.53) \quad (-3.31)$$

$$R^2 = 0.5230; \text{ Durbin-Watson} = 1.83961$$

$$3. \ln(M_3/\text{tot}) = 1.09 + 0.0414 \cdot t$$

$$t\text{-stats} \quad (12.25) \quad (3.70)$$

$$R^2 = 0.5540; \text{ Durbin-Watson} = 0.642347$$

$$4. \ln(\text{Other (Com bank)}/\text{tot}) = 4.49 + 0.00732 \cdot t$$

$$t\text{-stats} \quad (128.08) \quad (1.66)$$

$$R^2 = 0.2000; \text{ Durbin-Watson} = 1.39831$$

In the end, the statistical results show that no serious time series problems are found. The computed values of Durbin-Watson statistic are near to the value 2. But the low value of  $R^2$  in some cases show that alternative estimation models exist with better predictive power. This is indication to the fact that the possibility of simulation of the relationships in the time trend variables exists in a family of possible functional relations to improve the predictive power. This brings us to the case of expression (12.5) in the text where simulation rather than optimization of the system of circular causation relations is valid.

## *The Demise of Mainstream Economic Reasoning and the Alternative: A Generalized System-Model of Money, Real Economy, Finance, and Sustainability*

### *13.1. The Davos 2008 debate as an example: what is learnt and what is remiss?*

Davos World Economic Forum (2008a–d) sparked off a number of critical points on global economic remodeling. They bring forth social and economic facts that are to be addressed in a framework quite different from the conventional policy-theoretic reasoning of age-old socioeconomics. The prevalent reasoning continues on the traditional paradigm of growth and sharing, but in an unequal world of power, politics, and self-interest. In the present status quo, resources do not flow between the top and bottom, the industrialized and the developing countries, the rich and the poor, except by means of handouts and relief (Hans Singer and Ansari, 1988).

The gurus of Davos World Economic Forum (2008a–d) finally realized that widening gap remains aghast between the rich and poor nations and within nations. The prescription of economic growth is at best a model of world economic governance in which member countries of the IMF and World Bank must share the formulas and outlooks. Yet these are speculations in contradistinction to facts on the ground.

Some participants of the World Economic Forum (2008a–d) recognized these facts (World Economic Forum link 1, January 27, 2008): Global resource inequality prevails under the existing models and policy implications that continue to be imitated at the World Economic Forums. The future of such models and the world they want to build is bleak. The question of sustainability remains unattended and its effective addressing is impossible under the prevailing reasoning and actions.

We will argue in this chapter that the pivot of the continuing uncertainty, instability, and disorder is due to the deepening of the interest-rate mechanism in financial and economic matters in the prescribed models.



This is the heart of the problem of an unsustainable world-system. Consequently, an alternative new monetary, financial, and real economy interrelationship needs to be understood and implemented fast along with its interface in the social and ethical global milieu (Dunning, 2004).

It is a fact now that the much bloated IMF agenda on a new global financial architecture has not been anything different from the interest-based and monetary led risk-management and policy induction of the capital market. The theoretical, policy, and institutional aspects of the prescription has simply failed to stem the tide of uncertainty, volatility, and unsustainable socioeconomic change in the global order.

Growth has come about with ecological disaster; a jobless economy and deprivation of well-being at the grassroots. The incidence of poverty has deepened. Urbanization and privatization got the sway of IMF and World Bank agenda on trade liberalization, growth, and the freeing of prices. All these went against the interest of the agricultural sector. The climate of growth and capital market aggressiveness flourished in the midst of astronomical variations of the short-term interest rate. This was the cause and effect of instability of foreign capital flows that fueled the financial economy at the risk of the long-term investment needs of the real economy. In all of these there has arisen a deepening problem between interest rates, monetary transmission, and the real economy all together interfacing the issues of economic and social sustainability. Sustainability continues on to be viewed in the narrow environmental sense. Contrarily, the concept of sustainability transcends beyond a sheer economic and environmental attention into human ecology as a whole (Hawley, 1986).

The message on controlling interest-rate movements to boost spending at home and globally and the final acceptance by the IMF Director-General, Mr. Dominique Strauss-Kahn to increase budget deficit by increasing government spending, is worth the attention. Larry Summers remarked, "In the first time in a quarter century, the managing director of the IMF has called for an increase in budget deficits" (World Economic Forum link 2, January 27, 2008).

### ***13.2. Singling out the key problem of sustainability: the interest-rate adversity***

Big concerns and questions linger despite a final realization on the gloom over the world economic outlook by the IMF Director-General. A looming question is this: Can sustainability and social conditions of the global socioeconomic order be changed by a cursory examination of the short-term outlook on economic and financial matters as pointed out by Dominique Strauss-Kahn? By the prevailing arguments in the midst of the deepening interest-rate mechanism a sustainable transformation of the world economy is suspect.

Note the following kind of remark by the IMF chief (World Economic Forum link 3, January 27, 2008e): “Dominique Strauss-Kahn ...told participants that low interest rates, high liquidity, a breakdown in credit and risk-management practices, and a shortcoming in US financial regulation and supervision had produced an economic “perfect storm” in the financial world.” In his words, the IMF Director-General remarked, “I think we have to recognize the failure in this system and the overall regulation.”

The implication here is clear. The interest-rate mechanism is still being prescribed as the hinge-pin of financial market stabilization, thereby assigning the helm of economic growth on the deepening of financial market activities. The real economy is not emphasized. Consequently, the linkage of productivity and participation to a sustainable economic and social order leading to well-being and development and favoring targets such as small-scale enterprises in development planning, price stabilization driven by product diversification and risk diversification, a meaningful transmission of technology and institutional supervision to guide the money, finance, and real economy complementary linkages, all these remain largely unattended issues.

Only the short-run perspective has been the outlook of the financial model at the risk of the real economy model. But sustainability means complementary learning linkages between these two sectors. A new worldview and robust reasoning are required to establish socioeconomic sustainability, development participation, and equitable sharing and management of resources and financial futures. We now turn to one such radical reconstruction of the sustainable economic and social worldview.

### ***13.3. The focus and structure of this chapter***

The focus of this chapter is on developing a logical framework of complementary circular causation relations between money, finance, and the real economy through the medium of participatory development financing instruments. Such complementary circular causation relations automatically replace the rate of interest by the participatory development financing instruments. But the implications are vast. The circular causation relations have deep institutional and policy implications (Clark and Cove, 1998).

In this regard, this chapter will invoke certain theorems that build on the endogenous relations between the critical variables of money, real economy, development financing instruments, production, spending, charity, trade and prices. The emergent causal interrelations are examined in the light of the general-system methodology that emanates from the Islamic epistemology of the *Qur'an*, the Prophetic guidance (*Sunnah*) and the discursive society built on these. They together establish the intellection

premise of the Islamic law (*shari'ah*). The epistemological reference to the fundamental premise of knowledge in the *Qur'an* and the *Sunnah* makes the emergent formalism authentically Islamic in nature (Choudhury, 2003). We use this new vision to address the post-Davos questions hinged to the interest-rate disturbances in socioeconomics.

The Islamic approach to socioeconomic reconstruction for a sustainable world-system is required because of the wealth of ethical and analytical knowledge found in this worldview methodology. Yet the approach here is quite unlike and often contrary to the piecemeal approach of the prevailing ideas of Islamic economics and finance. The latter field has failed to invoke in any substantive way the epistemological foundation of Islamic reasoning on world issues. The essential Islamic reasoning is premised on *Tawhid*, meaning the oneness of God, and thereby of the divine law that prevails on the details of the world-system. Generating complementary circular causation relations between money, finance, and real economy in the midst of economy and society interface is a sign among many that reflects the worldly implication of unity of knowledge between systems and their representative variables, institutions, preferences, and agents. Such a systemic unity is attained by the epistemological reference of divine oneness through the medium of *shari'ah*-compliant instruments, rules, guidance, and outlets. While the epistemological reference is prevalent, the discursive society leads the way to the conceptual and applied perspectives of the *shari'ah* on worldly affairs (*muamalat*).

This chapter intends to adopt a summary approach that hinges on the logical formalism arising from the *Tawhidi* methodology of unity of the divine law and the world-system in all details. In doing so for the case under study, some theorems are formulated relating to money, finance, real economy, prices, and other socioeconomic verities. We thus address the post-Davos question of sustainability in resources and well-being in reference to the theme of pervasive complementarities in the good things of life. On this specific issue we show how socioeconomic sustainability can be modeled and engineered by the money, finance, and real economy interrelations in the absence of interest-rate mechanism.

#### **13.4. Conceptual background**

Any specific study of economic phenomena is pertinent to the system in which it is formalized. Thus conceptualization and theory form the driving force of the attenuating arguments and applications. They subsequently become the tools of analysis of various economic consequences. Some of these consequences to be studied as economic and social phenomena in reference to the Islamic general ethico-economic system of analysis are money, interest, production, the real economy, trade, spending, charity, and prices. The learning experience as process dynamics taking place in

such a vast nexus of unifying interrelations forms the meaning of socioeconomic sustainability. The questions of resource sustainability and well-being are then taken up in reference to the learning dynamics of unity of knowledge between systems and their representative nexus of variables appearing as vectors and matrices. In yet higher analytical levels the underlying participatory dynamics of the complementing world-system can take the form of mathematical topology (Choudhury *et al.*, 2007a) and complexity (Maurer, 1999; Choudhury, 2004a).

What is the learning dynamic that underlies the sustainability debate? We include in the idea of sustainability both the human and the nonhuman world-systems. We argue that there exist interactions leading to evolutionary learning consensus (i.e., integration) between these entities. Now unity between the representative variables of the subsystems establishes the complementarities between the human and nonhuman domains of the good things of life. Sustainability requires interactively generated integration between the diverse human and other resource possibilities. The learning relations comprise the diverse participating agencies, institutions, and policies. They are represented by their socioeconomic and policy-institutional variables. The interaction and integration between such variables continuously evolve along the enhancing evolutionary paths of pervasive complementarities between the good things of life (Daly, 1992; Goodman, 2003).

Such general systems of interrelations encompassing the embedded economic, financial, institutional, and social orders truly comprise the study of political economy and world-system qua economics and finance (Staniland, 1985). It revises the prevailing mode of thinking of given economic and social schools (Dasgupta, 1987a, 1987b) with respect to the problem of sustainability. In a broad overview of the economic literature on socioeconomic sustainability we need to study the neoclassical, Austrian, Keynesian, Marxian, and neo-Marxian, etc. vintages of economic and social thought (Martinez-Alier, 1987). In the same way, the extending scope of political economy renders the study of Islamic Political Economy and world-system to its own comprehensive methodology (Choudhury, 2007b).

**Theorem 1.** Inflation is untenable in an Islamic economic transformation.

Inflation is defined as the long-run increase in the price level of a bundle of goods that forms a representative selection for all households. In this basket most importantly are basic needs. Thus to stabilize the price level of such a basket is both an economic and social goal. The economy and society as the moral construction of human relations must consider inflation control and its ultimate eradication as a major sustainable goal of social well-being.

To study inflation, the comprehensive viewpoint of the general-system study suggests the existence of circular interrelations between price level, money, real economy, charity, and spending in the good things of life (*shari'ah*-compliant basket). Trade and spending, and thereby, the consequential inversion of the rate of interest by the rate of return on productive spending in the good things of life, become part and parcel of the emergent ethico-economic general equilibrium study.

In a general-system formalism there must inevitably be circular causation between the mentioned critical variables for conceptualizing, analytical examining, and evidentially proving the existence of unity of knowledge between the representative variables. The dynamics of the emergent knowledge-induced circular causation relationships are characterized by their intrinsic organic properties of interaction (caused by diversity) leading to organic participations or "pairing" as pervasive complements (integration). The interactive phase thus leads into organic integration, and thereafter, into evolutionary learning of organic nature.

Interaction followed by integration subsequently result in the post-evaluation of knowledge-induced systemic learning in the circular causation complementarities (Sztompka, 1991; Thayer-Bacon, 2003). Thereby, IIE of ethico-economic complementary outcomes by a social well-being criterion indicate the degree to which unity of knowledge has been attained in the economic and social order in any given learning process. Such a phase-specific learning process next leads into creative evolution of similar kinds. Such learning processes evolved by progressively gained pervasive complementarities between the systems and their variables are examined by circular causation. The degree of complementarities gained over given learning processes is evaluated by the social well-being criteria. The evolutionary learning experience continues on until the finality of all worldly events, which the *Qur'an* refers to as the Hereafter. The Hereafter is thus the terminal Great Event marking the fullness of knowledge. Consequently, there is no assumption of steady-state optimal equilibrium, and thereby, of the best learnt world-system along the evolutionary learning processes in respect of diverse issues of the world-system. Instead, continuous simulation marks the sustainability experience of unifying organisms (Fitzpatrick, 2003).

### ***13.5. Questions involving money and the real economy***

On a specific note, let us consider money and real economy through the medium of spending in the good things of life with the charitable spirit being an intrinsic value in it. Spending in the good things with a charitable goal is equivalent to liberating financial resource mobilization in the tripartite circular causation between money mobilized into the real economy through the medium of participatory development financing

instruments. The social well-being is entrenched in the consciousness of targeting the attainment of *dynamic* basic-needs regimes of development. Equivalently, the capital formation and technological change underlying the production and utilization of basic-needs regimes of development also form ethically induced artifacts of social change.

Now if resources are mobilized by interconnecting money and the real economy, what role is there for savings in economic development and in establishing financial markets? We argue that saving (bank saving) ceases to exist in its meaning of “holding of liquid funds” in financial intermediaries for earning interest income. Bank saving as withdrawal in such a case is therefore an impediment to prosperity and socioeconomic development. Only when total saving equals spending (including investment, consumption, government spending, and charity) *continuously over time* can there exist a matching between savings and resource mobilization (Ventelou, 2005).

The question next is this. What if savings do not equal mobilization (spending) in the *shari’ah*-compliant outlets at any given time period? In such a situation, the residual amount of financial resources ought to be mobilized into trade-related activities (domestic and foreign). The risk-free nature of trading activities now combines with the real economy impetus causing such resource mobilization to create productive activities. Indeed, foreign trade financing is a much encouraged instrument in Islamic development financing for establishing money and real economy linkage (Islamic Development Bank, multiple annual reports).

In the progressively dynamic money and real economy linkages, savings as withdrawal decline and resource mobilization increases. Consequently, the policing over money supply by the central bank gets reduced. The central bank now focuses only on economic stabilization matters. Commercial banks are instrumental in using the Islamic participatory financial instruments to mobilize money into the real economy.

Resource mobilization picks up. Thereby, saving as macroeconomic financial withdrawal disappears. The spending propensity increases. In the *dynamic basic-needs regimes* of socioeconomic development, prices remain stable. Such an economic adjustment is similar to the case of perfectly elastic demand curve of the firm’s output in the case of basic needs. The extent to which increasing spending in the good things of life proceeds to define the money and real economy linkages through the intermediation of participatory financial instruments, to that extent the rate of growth of productivity progresses. Now the rate of growth of prices in such productive basic-needs regimes remains lower than the rate of growth of productivity. The rate of spending in the good things of life equals the rate of growth of the quantity of money circulating in the real economy by the force of resource mobilization. These are well-known conditions under which inflation cannot exist. Thus inflation ceases to exist in the midst of the money, finance, and real economy linkages when participatory

financing instruments are used to mobilize resources while reducing savings as withheld liquidity. The precept of unity of systemic knowledge between the good things of life works out here.

### **13.6. Institutional issues of inflation: regulation**

Next enters the institutional issues on the inflation question. In the money and real economy linkage, the central bank is required to attend purely to economic stabilization matters and not mainly to the management of money supply. The fullest mobilization of financial resources through the commercial banks and the residual need for central bank to monitor monetary matters result in the 100% reserve requirements monetary system with the gold standard (Choudhury, 2008d). The idea here is that commercial banks ought to mobilize 100% of financial resources into the real economy. Consequently, there is no need for central bank to apply statutory reserve requirement in such an ideal case.

But when financial resources are not fully mobilized through commercial banks, the “residual saving” is deposited 100% with the central bank. The central bank then protects the value of this deposit. In this way, the value of the currency in circulation is protected by the proportionate amount of “residual” reserve. The currency value then equals “residual reserve” per unit of the gold stock needed to shore the value of this reserve with the central bank. In the inverse relationship between resource mobilization and savings the amount of gold required to shore the currency value in circulation is thus small.

Through resource mobilization the real productivity of the economy is further enhanced along a dynamic basic-needs regime of economic and social development. The gold standard further halts the financial volatility. The end of inflation and the rise of sustainable stable prices emerge.

Remember that inflation is long-term increase in price level of a bundle of goods. Thereby, as the economic transformation picks up from the short to the long run, the above-mentioned dynamics strengthen. The reality of sustainable development transformation vis-à-vis the convergence to a zero inflation rate becomes the established trend from the short run to the long run.

Inflation cannot therefore exist in the above kind of a general-system model. Indeed, the *Qur'an* points out the much-desired economic and social circular causation relations between money, trade, spending, charity, and the avoidance of interest rate (*Qur'an*, Chapter – *Al-Bakarah*:161–175).

**Theorem 2.** Inflation cannot exist in the Islamic economy except to the extent that there is outstanding debt and its *riba* (interest) overhang.

Most models proposed by prevalent Islamic economists including those who have received IDB Prizes are based on the existing mainstream



reasoning. I have critiqued this elsewhere (Choudhury, 2008b, 2008c). The Islamic economists have ignored the *Qur'anic* reference to the general-system worldview that is enabled by *Tawhid*. None of the works by the Islamic economic and finance gurus reflects the *Tawhidi* methodological origin of Islamic thought in relation to Islamic political economy and world-system.

On the issue of debt and interest (*riba*) relationship we start by recognizing that *riba* is phased out in accordance with the heightened organization of the political economy and world-system in the light of the *Tawhidi* unity of knowledge as the institutional and learning norm. The resulting form of progressive transformation can also be understood as the participatory knowledge-induced world-system. Consequently, the circular causation in the general-system model evolve over processes of systemic learning by interaction and integration between the following variables (*Qur'an*, 2:161–175): (1) Trade (T), (2) Spending in the good things of life (Sp), (3) Charity (Z), and hence (4) the *inversion* of *riba* (R). According to the relational epistemic model of unity of knowledge generated in such a systemic learning organic interrelationships, there exist circular causation between the mentioned variables as economic and social indicators.

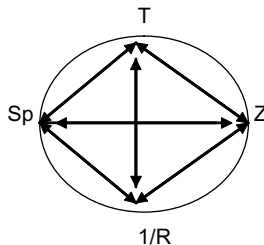
By briefly stating, while leaving out the equations and details, we configure the above-mentioned circular causation as shown in Figure 13.1.

In the imperfect state we take  $r/R$  for  $1/R$ ,  $r$  being the rate of return in participatory financing, trade, and spending in the good things of life.

### 13.7. Circular causation and systemic complementarities

The objective of circular causation is to derive the extensive complementarities as they configure unity of knowledge by relational learning between the variables in the light of the *Qur'anic* law (2:161–175; 36:36) of “pairing.” Circular causation results in the method of simulation of the *Tawhidi* knowledge-based well-being function. The social well-being function evaluates the degree to which unity of knowledge is attained by

**Figure 13.1.** Circular causation between trade (T), spending (Sp), charity (Z), and their collective inverse effect on *riba* (interest rate = R)





pervasive complementarities between the representative variables of symbiotic systems over evolutionary learning processes.

In this way, the rise of productivity in the social and economic sense taken together as embedded subsystems within the emergent dynamic basic-needs regimes of development cause prices to remain stable while the social and economic (joint) productivity increases. All along, savings are continuously mobilized into spending over time. The concept of saving is thereby replaced by resource mobilization in the good things of life through the use of participatory financing instruments contra-interest rate.

To formalize, let  $\theta$ -value denote a consensual knowledge-flow derived by social discourse and is derived from the episteme combining the *Qur'an* ( $\Omega$ ) and the Prophetic guidance ( $S$ ) (*Sunnah*). Thus  $(\Omega, S)$  denotes the *Tawhidi* epistemology.  $Q$  denotes output.  $P$  denotes price level.

$$[(d/d\theta)[\log(Q/P)] = [(dQ/Q)/d\theta - dP/P/d\theta] \uparrow, \text{ as } \theta \uparrow \in (\Omega, S) \quad (13.1)$$

Note the nature of time now is merely that of a recording datum. Time enables observation of the primal causation by  $\theta \in (\Omega, S)$  as the substantive *raison d'être*. Now as the organic learning processes evolve into higher levels of consciousness and application, the unity of knowledge in world-systems enhances. The resulting complementarities between the systemic variables with the use of participatory development financing instruments cause inflation to run down to zero.

### 13.8. Riba and debt

Likewise, *riba* and debt run down to zero as well in the dynamic basic-needs regimes of development. Yet the extent to which  $\theta$ -values remain imperfect in the learning processes of the dynamic basic-needs regimes of development, so also *riba* and debt prevail but in declining trends. Consequently, upward price-change remains marginal but stabilizing.

However, economic change is measured not by actual state-variables, rather by changing trends. Over the learning trends we note that inflation, debt, and *riba* would converge to zero (low) levels conterminously.

Now both the endogenous knowledge-induced general-system model and the institutional policies together set in motion the forces of Islamic political economy tending toward zero levels of *riba* and debt as social and economic evils. Such a trend is the heart of economic and social change. It establishes the goal of the Islamic world-system.

In the end therefore

$$\begin{aligned} &\text{savings} \leftrightarrow \text{interest} \leftrightarrow \text{debt} \equiv 0, \text{ identically} \\ &\text{as } \theta \uparrow \in (\Omega, S) \text{ in the dynamic learning processes} \\ &\text{of the Islamic world-system induced by unity of knowledge} \end{aligned} \quad (13.2)$$

**Theorem 3.** Debt and *riba* are complementary evils and methodologically cannot exist in the Islamic economic system.

Debt is caused by overextension of development financing beyond means and purpose. It is caused by the ego of material want and regimes of growthmanship along acquisitive lines. Thus financial borrowing for fueling economic growth that accrues by overextension of development financing carries interest charges with it. The lending though comes from finances generated by savings on the lender side in the first place. The accumulation of such savings is generated by interest rates offered to savers from deposits. Lending is made possible now. Plus money creation is pursued attenuating to the financial overextension pursuing material wants. But in the midst of such overextension of acquisitive growth money as promissory notes is created out of nothing (Shakespeare and Challen, 2003).

Thus:

$$\begin{aligned}
 &\text{Savings increase} \leftrightarrow \text{interest rate increases} \leftrightarrow \text{debt increases} \\
 &\text{Savings} = \text{withdrawal} \\
 &\text{resource mobilization} = \text{spending} \qquad \qquad \qquad (13.3) \\
 &\text{savings and resource mobilization are contrary} \\
 &\text{activities in the ex-ante and ex-post sense of investment}
 \end{aligned}$$

Here we make no difference between *riba*, interest, and usury on grounds that we are proposing a logical and universal socioeconomic theory that emanates from the Islamic epistemological origins and applies to all socioeconomic situations. Ours is an analytical examination, irrespective of the prevailing level of interest rate.

Note that even a smallest level of interest rate applied to a large amount of borrowing creates a huge debt-service burden. But since savings are to be generated in the first place to finance debt at interest rates, therefore, interest rates cannot be small in such cases. Consider the Official Development Assistances (ODA) that feigns of soft interest charges on borrowed funds to least developing countries. Yet such development financing assistance has not eased the debt burden.

**Theorem 4.** Quantity of money circulating in the Islamic economy can be formalized by a revised version of the Equation of Exchange.

The Islamic argumentation vis-à-vis the *Tawhidi* methodological worldview can now be extended to bring out the definition and function of money in the economy vis-à-vis a revised version of the Quantity Theory Equation of Exchange. There is too much here to be included in this chapter. See Choudhury and Hoque (2006) for details. There is also a good coverage on the topic of Quantity Theory of Money and Exchange by Friedman (1989).

Consider the Equation of Exchange,  $MV = PT = P.y$

giving its micro-disaggregation,  $\sum M_i V_i = \sum P_i . y_i$

$P_i$  denotes prices corresponding to  $i$ th project-specific goods (13.4)

$y_i$  denotes real income specific to projects.  $i = 1, 2, \dots, n$

$V_i$  are micro-concept of velocity of circulation of money

The velocity of money circulation in the good things of life is caused by  $\theta \uparrow \in (\Omega, S)$ . The Equation of Exchange now assumes a different meaning from the standard quantity-theory equation. In the Islamic case, with emphasis given (almost solely) to micro-foundations and project-specific velocity of money circulation,  $V_i = 100\%$ . It implies full circulation of money in  $i$ th real sector,  $i = 1, 2, \dots, n$ . The financial sector now complements the real sector by its financing instruments according to systemic complementarities vis-à-vis the principle of *Tawhidi* “pairing.”

If we disaggregate “ $i$ ” to the level of projects,  $M_i$  is circulation of money at 100% level as full-spending in projects. Money is then interpreted as micro-money. The value and function of money are determined only in relation to the real economy. There is no holding concept of the demand for money. Consequently, the saving and speculative hypotheses of money demand disappear. When measured in terms of asset (gold) backing, the relationship between the central bank and the commercial banks in respect of the mobilization of money into the real economy through financial instruments brings about the 100% reserve requirements monetary system.

### **13.9. Conclusion: after Davos World Economic Forum (2008a–d) how to organize money and real economy linkages for gaining sustainability?**

Those in private sector, economics, finance, and social development should take stock of the true roots of the real sector model of profitability, shareholder’s wealth, and thereby, of the coterminous interpretation of the money and real economy socioeconomic linkages. The fact of the matter is that if pursued contrarily, the increasing signs of present days’ banking and financial capitalism will strengthen deepening of global capitalism that does not translate into well-being while the fervor of growthmanship is upheld.

The goal of socioeconomic development and sustainability, which the *Tawhidi* worldview pursues, is not growth per se; rather the objective is to simulate the well-being criterion with pervasive complementarities between the good things of life (*maqasid as-shari’ah* goods). In this perspective it is necessary to pursue and organize the ends of all businesses by and for the uplift of global well-being. Within this criterion rests the derived result of growth and sustainability.

The financial and producing sectors ought to keep this consciousness clearly and actively in them. Businessmen are engineers of money, finance, and societal linkages. In the Islamic case, such financial engineering is reflected in the way how the epistemological precept of *Tawhid* establishes the relationship between the law of divine oneness and the world-system (Choudhury, 2009b).

The lesson derived post-Davos [World Economic Forum \(2008a–d\)](#) is to rethink socioeconomic change, sustainability, and financial stability along lines of the general-system of circular causation as complementary interrelations between money and the real economy through the medium of participatory development financing instruments. Embedded in such relations are the coterminous consequences of stable prices, productivity, and well-being to address economic, financial, and social malaise. Most important in these is reduction of poverty by increasing access to affordable resources and enabling entitlement and empowerment. Development planning is then seen as a nexus between diverse echelons of society that progressively learn by organic unity between them.

Interest rate is an impediment to such a dynamic of socioeconomic change. But the interest-rate mechanism is washed away by the logical formalism of participatory development financing instruments. In present times the learning and unitary dynamics of Islamic political economy render such development financing instruments for socioeconomic development and well-being. The foundational guidance comes from the precept of systemic oneness. The result is the general-system model of money, real economy, prices, production and charity. Any perspective in this direction is left out by the excessive growth-led emphasis of [World Economic Forum \(2008a–d\)](#) and other ones.



## ***The Islamic Panacea to Global Financial Predicament: A New Financial Architecture***

### ***14.1. Causes of global financial predicament***

The following is a summary of causes of global financial meltdown that brought about a mammoth injection of bailout funds by the national world governments. The debt and assets of major banks in the West had to be guaranteed by government protection. This is tantamount to a kind of nationalization of banks, a case quite contrary to the free-market ideals.

1. The onset of the financial crisis arose in the mortgage market that could not get back the mortgage payments from large debtors on housing assets. Such large debts were built up by the borrowers in the housing market in the face of subprime mortgage interest rates, which were attractive to borrowers. The borrowers took advantage of such an easy borrowing situation to build up debt that went out of their ability to pay against the excessive borrowing in inordinately lavish housing assets.
2. Such is the case of overinvestment in the housing market that was not in tandem with the capability of being paid out in the short run. Thus default in mortgage payment commenced from the consumer syndrome of excessiveness. Upon this the financial institutions privileged the consumers to realize their excessive desires.
3. Mortgage funds are borrowed funds from banks and lending institutions to the mortgage markets. These are then returned to investors. The mammoth debt that arose from default in mortgage payments naturally fell with crushing weight on the lending banks and corporations.
4. Real estate assets were foreclosed on owners and investors due to their unwieldy loans accrued on excessive kinds of real estate properties. These could not be serviced in the face of high mortgage payments even at subprime mortgage rates.
5. For sometime in 2006, the high price of excessive kinds of real estate properties raised the volume of total mortgage payments. Together with this mortgage crunch the illiquidity of expensive property assets led to

real estate market correction. This caused house prices to decline. During the period 2007–2008 owners and investors experienced the adverse financial effect of losses in real estate properties. Consequently, lending banks and corporations lost heavily in the wake of low returns on the uncapped value of their financed assets.

6. Easy and ineffective global financial regulations compounded the problem of excessive demand among individual owners and investors. Easy monetary policy was practiced at low but fluctuating borrowing rates in response to the volatility of the real estate market fueled by speculative investors. This was a repeat of the real estate speculative financial crunch that broke the growth bubble of East Asian economies during the late nineties. Fluctuating short-term rates of interest and the speculative aggressiveness among investors entrenched the volatility fears in the financial markets. The worst affected was the equity and bond markets, as capital freely flowed between holding of bonds during fluctuating regimes of high short-term structure of interest rates and equities with higher but volatile yields during regimes of low-term structure of interest rates.
7. While the domestic financial markets reacted to the sequence of causes for financial volatility and corporate insolvency, the contagion spread across the global financial markets through the adverse effects transmitted by the real economy and international trade in both merchandise and capital.
8. Economic and financial indicators that worsened the relationship between financial and real sectors were legion. Industrial production in the United States slumped. The rate of growth of real GDP slowed down considerably in China. The International Labor Organization forebodes 20 million people unemployed globally. Several sovereign nations, Iceland, Pakistan, Greece, Ukraine, and Hungary came near to bankruptcy and had to be rescued with heavy doses of borrowed funds. Heightened debt-service charges fell upon the immense amount of borrowed funds to bailout large banks across the world. The stress was on taxpayers' resources to finance such large debt hangovers. Slowdown in consumer spending and investor confidence subdued recovery of the stock markets globally despite the mammoth financial bailout packages for banks, financial corporations, and nation states. These causes compounded to worsen the relationship between the financial sector, the real sector, and foreign trade flows, whose health had already reached unsustainable level in the stalled ideas and mechanism of western capitalism and its political and institutional backing under neoliberalism.
9. The long-term foreboding of the western capitalist and neoliberal system is sullied by the permanent fear of instability. Within this climate of change the economic, financial, and social relations cannot be maintained for the common well-being. The IMF has pointed out this long-term financial Armageddon (Kahn, 2008). There is structural

problem in the neoliberal western capitalist system that cannot be resolved by empty slogans like “a new global financial architecture,” “new international economic order,” “western democracy,” “new world order,” and the faded ideas, mechanisms, and applications of an unworkable free-market.

#### ***14.2. Summarizing the roots of the global financial crisis – the permanent human and economic malaise***

The basis of the present financial crisis, which is bound to continue inflicting its venom because of structural problems of society, economy, finance, and institutions, is the insatiable preferences of households and investors that fuel excessiveness in the real estate market. Then there is the contagion that this kind of preference has on the economy and the foreboding uncertain market expectations everywhere. Finally, the excessiveness is allowed to survive and proceed on with unrelenting animal spirit by weak government polices, outmoded understanding of the economic and financial world-system, being unable to simulate the otherwise complex system by a spent-out methodology.

At the level of preference interactions is a complete lack of consciously responsible behavior in individuals, households, and institutions. These agents reinforce each other in their acquisitive passion for excessiveness to acquire. This is the permanent character of global capitalism led by neoliberalism (Sklair, 2002; Dunning, 2004).

Learning with consciousness remains absent in the face of gullible self-interest in the midst of the greed and passion that flairs the excessive passion to acquire. The perennial financing instrument upon which the acquisitive animal spirit survives is the rate of interest of every kind – short-, medium-, and long-term structure and shadow rates of interest. The interest rate as the instrument of volatility carries with it the permissiveness of the acquisitive spirit, and silences the conscious elements from everyone’s preference maps.

In this chapter we will associate the global financial crisis as a permanent case of large business cycles caused by multifarious factors. These factors are more than those simply explained in the textbooks. They are quite apart from the narrow limits of the investment and spending scenario that marked the Great Depression of the thirties. That is because of the complexity caused by the multifarious factors, which cannot be simply analyzed by the existing straightforward economic and financial methods. The present business cycles move away from stability into continued disturbances due to structural causes fueled by the capitalist passion to acquire excessively. Such is the character of greed and disorder on which the high grounds of capitalism born out of liberalism survives and mutates.



Around the basis of individual and collective preferences organized into institutional forms, systemic chaos becomes a permanent character of global capitalism. To get out of this permanent environment of chaos and disturbances no quick patchwork can be adequate. While the need for immediate halting of the financial crisis is mandated, yet its long-term implications regarding substantial change ought to be the goal.

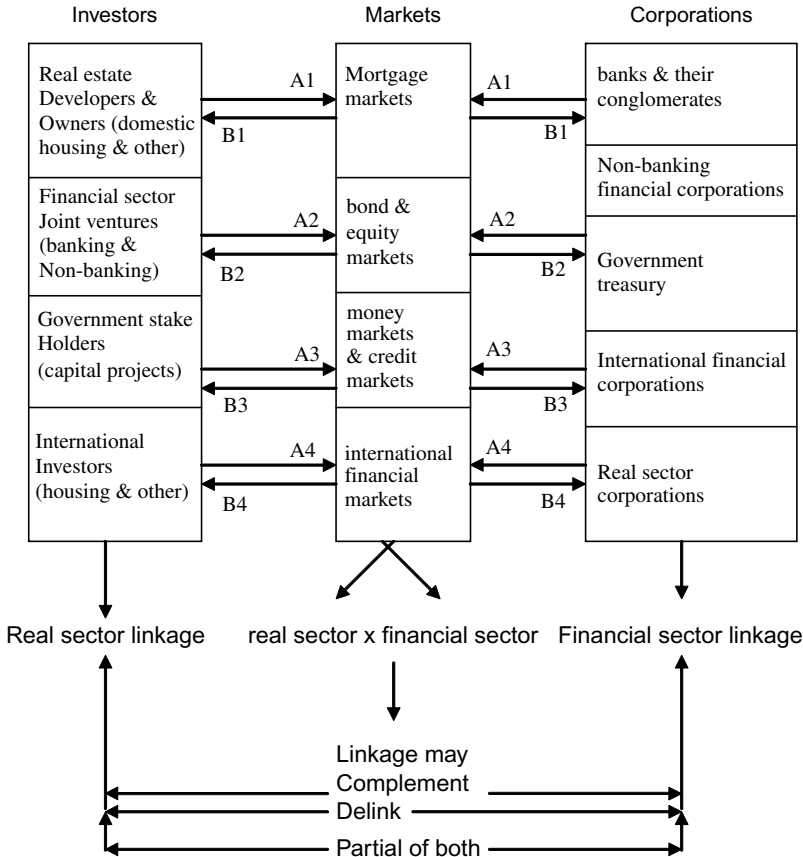
Substantial and revolutionary change will require bold negation of the neoliberal premise. It will consequently entail great and bold questioning on the economic, financial, institutional, and social fronts. Julian Huxley wrote about the social engineering of planet earth in his *Brave New World*.

The entire concept of money and the real economy through the function of finance and institutional policies must be rethought. The conception of money itself will undergo a new definitive understanding. The resulting financial instruments will deny many of the underlying epistemological groundwork on which neoliberalism and its model of global capitalism stands. We will argue that the central implement in all these is the rate of interest of all kinds. Interest rate is proven to be a financial instrument, which is the cause and effect of vicious cycles of reinforcing individualism, acquisition, and institutional and economic debility arising from under-mobilization of resources. At the end, we inherit a permanent lack of linkage and continuity that otherwise the monetary sector and real economy need to sustain in a stable and fulfilling economic, financial, and social order. A thorough change of global capitalism and its epistemological rooted in neoliberalism is mandated.

### ***14.3. A generalized schema of flows of funds***

In Figure 14.1, problems of sustainability and stabilization arise when full or partial delink exists between the monetary, financial, and real sectors. The depth of such differentiation between the sectors is caused by the inability to mobilize financial and real resources in complementary fashion to make the best use of money in the real economy. This requires appropriate financing instruments, supervision, and learning in the system to transform or perpetuate consciousness through the interacting system with the labyrinth of their complex relations. Interest rates are a barrier to such a possibility. The presence of interest rates diverts monetary and financial resources away from the real economy into financial savings to earn interest rates, without the turnover in money being linked to real productivity. Indeed Keynes, whose ideas of macroeconomics saved the western world from the Great Depression of the thirties, encouraged spending in productive ways, opposing thus the propensity to save, to tax and thus cause unproductive leakages (Ventelou, 2005).

**Figure 14.1. Nature of relationships between money and real economy in neoliberal society**



**14.4. The arguments in respect of a new episteme for economic, financial, and social sustainability**

In this chapter our objective is to point out the structural problems of that faded economic, financial, and scientific rationalistic episteme of the neoliberal genre that is unworkable in the face of social complexity. The socio-scientific system that humankind has inherited in this postindustrial age of production turning into high consumption broadly defined is complex due to its extensive relational and simulative nature. The idea of complexity is that of endless continuity of circular causation relations, which delineate the nature of human problems. Myrdal (1968) wrote on this point in his explanation of the wider field of social causation in the context of socioeconomic development. Fitzpatrick (2003, p. 128) writes on

the endless simulative character of our learning and organic relations within embedded socio-scientific problems: “Ours, then, is an age of simulations that endlessly refer only to other simulations. The infinite circularity of these self-references is what Braudrillard calls the *simulacra*: everything is a reproduction of other reproductions. Society explodes in on itself and we cannot liberate ourselves from the *simulacra* ...”

In our case in this chapter the circular causality that we will study would point out how neoliberal western socio-scientific episteme breaks away from the unity of the economic world-system. The particular case of such organic and learning understanding of systemic unity is the organic symbiosis between money, finance and, the real economy. Due to such a permanent entrenchment in neoliberal worldview, its episteme cannot address the structural problems and the social reconstruction toward attaining organic unity.

Our focus then is on the structural nature of organic and complex relations that symbiotically embed the money, finance, real economy, and exchange relations under the framework of organic learning. Such learning occurs continuously in a complementary venue of market and institutional interaction. The idea is substantively defined to establish the episteme of unity of knowledge in such a pervasively unified, and hence, complementary system of organic learning relations.

Following this contrasting departure of the new structural reconstruction model as an epistemic novelty, different from the socio-scientific oddity of neoliberal rationalist paradigm, we present the new symbiotic worldview of unity of knowledge as the episteme of the new structural reconstruction. In the light of this episteme we offer the alternative framework of reconstruction toward a participatory worldview involving money, finance, real economy, exchange, and institutional circular causation relations qua complexity caused by the systemic richness of learning.

Our search in the above directions of establishing the functional ontology (Gruber, 1993; Acikgenc, 1993) of unity of knowledge and its formalism and application to the case of money, finance, real economy, exchange, and institutionally embedded symbiosis will take us to the Islamic foundations of oneness of God and the world-system. Divine Oneness here is a general, universal, and unique epistemological precept. We will particularize its application to the case of money, finance, real economy, exchange, and institutionally stimulated systemic symbiosis. Through our functional ontological formalism and its application and simulated inferences we will point out the strategic policies and programs that emanate from the epistemic worldview of symbiotic oneness in the context of organically learning systems that are complex by their relational complexity but unified by pervasive complementarities between the good choices of life.

Thus our objective at the end is to alert the reader to the Islamic foundational worldview of divine oneness (*Tawhid*) at work in replacing

with and sustaining a new breed of thinking along the lines of economic, financial, institutional discursive theories, and policy perspectives.

#### **14.5. Where has neoliberalism failed? The contrasting episteme of Islam and its world-system**

What is the meaning of episteme? Foucault (see Sheridan, 1983, p. 191) defines the word *episteme* as follows: “By *episteme* we mean ... the total set of relations that unite, at a given period, the discursive practices that give rise to epistemological figures, sciences, and possibly formalized systems ... The episteme is not a form of knowledge (*connaissance*) or type of rationality which, crossing the boundaries of the most varied sciences, manifests the sovereign unity of a subject, a spirit, or a period; it is the totality of relations that can be discovered, for a given period, between the sciences when one analyses them at the level of discursive regularities.”

Why is it essential to invoke an epistemic inquiry to lay down the altogether different and revolutionary original view of Islamic economic and financial architecture from its epistemic foundation of divine oneness in “everything”? In answer to this question we point out that foundational axioms remain at the root of a conscious order. They do not simply operate mechanically, as by human desires and rationalism. Contrarily, morals, ethics, consciousness, logical formalism based on such edicts of human values and the reason to decipher inferences premised on the epistemic axioms play their organic roles in erecting the mind of civilization of the *longue duree* (Braudel, 1995).

Liberalism and economics (Taylor, 1967), and the emergent social, cultural, institutional, and political order are examples of the epistemological entrenchment of a certain understanding of reality based on rationalism (Minogue, 1963). In rationalism, God and the moral order in organizing human experience remain isolated from the worldly function and model of the neoliberalism worldview.<sup>1</sup>

Consequently, rationalism is a denial of oneness by the self-centered ego of competition and individualism, which exist in the agent and the social order. So when we apply this edict to “everything” then there arise the corresponding forms of society and civilization. This kind of rationalistic

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<sup>1</sup> Bakar (1999, p. 32) writes: “Rationalism is false not because it seeks to express reality in rational mode, so far as this is possible, but because it seeks to embrace the whole of reality in the realm of reason, as if the latter coincides with the very principle of things. ... the very rational faculty is placed at the disposal of faith or revelation in the sense that it is called upon to present and expound the contents of Revelation in a rational manner to the best degree possible, whereas in modern thought it has been used to rebel against truth claims which lie outside its cognitive competence.”

origin of self and methodological individualism promotes the differentiated system of economics, finance, society, and institutions. Within this we find the partitioned views and functions of money and finance from the real economy.

The central premise of savings in capital accumulation rests on the perpetual withdrawal of a certain proportion of the potential output into interest-bearing idle capital. Such a continuous withdrawal of resources away from the formation of potential output causes the economy to underperform. Business cycles now remain endemic in economic and financial flows. Thus bank savings are never fully mobilized into spending in the good and conscious choices of life. Think of such goodly pursuits as the Rawlsian primary (Sen, 1989). The stability and sustainability of the economy, so much required to arrest the business cycles, are thus never attained in the presence of failed mobilization of resources.

The monetary and financial sectors on the one hand and the real economy on the other hand have opposing goals and interests to serve. Financial interest and savings promote the power of capital accumulation by holding back the potential resources from full mobilization into the real economy.<sup>2</sup> Contrarily, investments and spending in the good things of life promote the goals of productivity and creativity by full mobilization of resources.

The economic problem of the financial sector in neoliberal heritage of economics is maximization of expected utility function of a principal-agent contract subject to the present-valuation of future cash flows discounted at a rate of interest. The economic problem of the real economy in the differentiated economic and financial systems is construed as maximization of output subject to the payments to factors of production and sources of economic profits according to prices set by a combination of market and institutional forces. A pervasively complementary relationship between the financial and real economic activities is impossible. Otherwise, the relative prices of (interest rate to output prices)-ratio cannot be determined by the

<sup>2</sup> Let  $Y_0$  denote GDP at time  $t = 0, 1, 2, \dots$ ;  $s_t$  denote saving ratio at time  $t = 0, 1, 2, \dots$ ;  $g$  denote a constant growth rate of GDP at time  $t = 0, 1, 2, \dots$

Disposable income after saving at time  $t = 0$  is  $Y_0(1-s)$ , which increases to national income  $Y_1$  at time  $t = 1$ .  $Y_1 = Y_0(1-s)(1+g)$ . Likewise,  $Y_t = Y_0(1+g)^t(1-s)^t$ .

Now consider,  $\partial Y_t / \partial s = -t Y_0(1+g)^t(1-s)^{t-1} < 0$

$$\partial Y_t / \partial g = t Y_0(1-s)^t(1+g)^{t-1} > 0$$

only due to the positive effect of  $g$  but dampened by the negative effect of  $s$ .

The above results remain true irrespective of a moment of time and in the continuous sense. Besides, the argument that a higher volume of savings would grow into more resources for investment in the future contradicts the fact that at any moment of time that volume of savings is a resource withdrawal. That amount of potential resource could otherwise have been used to perpetuate economic growth and thereby development and social well-being.

marginal productivity of commodity substitution with the two kinds of goods and services (real economy and financial sector, respectively) being substitutes of each other (Henderson and Quandt, 1971). Pervasive complementarities between these sectors and their artifacts are thereby methodologically impossible in received economic and financial theory governing rational choices.

Contrary to the pervasive rule of marginal rate of substitution coming out of the kinds of competing opposites that are generated in a differentiated regime of money, finance, and real economy, the principle of pervasive complementarities forms the sure and measured attainment of unity by participation and organic learning between money, finance, and the real economy. But in this case, relative prices cannot be determined by the first-order conditions of profit-maximization. Instead, prices are like those of classical markets. They are set by multimarket cause and effect between the endogenous variables that interrelate with the activities of multimarkets. Such interrelationships generate the essential visage of learning by circular causation in the form of simulations between the endogenous variables. Learning causes all variables, including the policy-variables and household and institutional preferences, to become endogenous. Only the precept of oneness remains the invariant exogenously given axiom that governs all other relations as endogenous ones.

Circular causation across the domain of endogenous relations is the sign of learning. Economic and financial systemic sustainability by such a participatory learning behavior establishes the ethics of the system. It is singularly derived from the moral law of oneness. We therefore have the money, finance and real economy, institutional and social relationships as a system of unified, complementary, and participatory circular causation between endogenously learning variables on the basis of the precept of organic unity of knowledge in “everything.”

There is no such epistemic methodology in the prevalent economic, financial, institutional, and social world-systems to study the functional nature of the divine law of oneness by its various functional instrumentations. Contrarily, such instrumentations establish a sustainable economic, financial, and social order by pervasively complementary learning relations. Such a socio-scientific order rests primarily on the precept of unity of knowledge of a symbiotic, embedded, and unified worldview. Unity of knowledge is thereby a systemic participatory and complementary reality. It invokes the moral law of conscious oneness as well as the functional ways of attaining the oneness in the form of organic linkages between the good things of life.

In the financial world, interest rate is unacceptable for resource mobilization. It diminishes the power of resources to flow freely across complementing systems. Unfortunately, the neoliberal financial system with its theory, institutions, and policies has not been able to liberate itself from the grips of interest-rate mechanism, despite the realization that low

rates of interest are necessary to step up spending in all fronts to evade a recession.

The Chairman of the Federal Reserve Board in the United States, **Ben Bernanke (2008)** in his speech on the present economic and financial conditions, repeated the economic argument of opportunity cost of choices. He referred to the banking bailout with public funds as a trade-off between bailout and recession, despite that the recession in which America nose-dived is expected to be a prolonged one, protracted globally. The concept of opportunity cost is a static one in a nonlearning world. It cannot therefore be included as ethics within the organic learning of richly complex but unifying systems.

Contrarily, cooperative financing instruments replace interest rate and bring about the cementing nature of cooperation, participation, and complementarities in everything that revolves around accelerated resource mobilization. The consequential effects, such as employment, productivity, and creativity in a conscious environment of learning within organic wholeness represent the working of systemic unity arising from the episteme of divine oneness. Such a systemic organism of oneness derived from the episteme of divine oneness as the primal law, and around which everything revolves in the orbit of oneness and its continuity by learning, is the basis of the linkages that must exist between money, finance, the real economy, and the social and institutional environment.

#### ***14.6. Why is the episteme of conscious oneness of symbiotic interaction between money, finance, and real economy necessary?***

Both the answer to the questions posed here and the status of the prevalent thinking in economics, finance, and society shows that unity of knowledge between these mutually embedded systems and their representative variables is a long forgotten ideal. Reintroducing the episteme of oneness and its functional ontology of unity of knowledge and the world-system into the problem of money, finance, and real economy with the social and ethical essence is a revolutionary project.

Ethics and human systems were deeply ingrained in Smith's theory of moral sentiments (Smith, Raphael, D.D. and Mackie, A.L., 1976). Ethics is deep in Keynes' economic epistemology of uncertainty, probability, and the econometric method (O'donnell, 1989). In the study of social dynamics and political economy Hegel blazed the way of thinking along lines of the ethical concept of the World Spirit Hegel (J. Sibree, 1956) and Hegel (Dyke, S.W., 1996). Marx (Spechler, 1990) was not an ethicist. Yet the dynamics of social discourse and interaction colored his political economy. The Austrian School of Economics was deeply ethical by virtue of its epistemology of the learning model (Hayek, 1990; Kirzner, 1997).

In the age of Islamic scholasticism almost every single idea was deeply epistemological and invoked the moral law of divine oneness to explain the central Islamic episteme of unity of knowledge in relation to the world-system (Choudhury, 2004b). Of particular mention are Imam Ibn Taimiyya (see Islahi, 1988) and his student Ibn Qayyim (see Islahi, 1988). They both wrote strongly in favor of gold and silver as the intrinsic bullions for the monetary standard. They opposed the policy of the Mamluk dynasty of Egypt during that time, which debased money by replacing gold and silver with copper. The result was a 400% increase in inflation in Egypt at the time. Imam Ghazali (Rahman, undated) was strongly against debasing of gold and silver coins, which were treated as currency in circulation during his time. A debased coin was valued less because it did not buy the same amount of goods as a non-debased currency coin in circulation. Ibn Khaldun (trans. Rozenthal, 1958) praised the artisans over merchants because of their productive contributions to the national output.

The most important sources of Islamic epistemology of divine oneness and unity of knowledge, namely the *Qur'an* and the *Sunnah* (Prophetic guidance) present the architecture of symbiosis between “everything.” The most powerful explanation of the underlying principle of pervasive complementarities is the principle of pairs in the *Qur'an*.<sup>3</sup> Besides, the model of development in the *Qur'an* is one of dynamic basic-needs comprising the good choices of life.<sup>4</sup> Upon this principle Imam Fakhruddin Razi formalized his *ubudiyya* (worship theory) theory of life-sustaining goods (Noor, 1998). Imam Shatibi (Masud, 1995) established his well-being theory called *al-maslaha wal-istihsan* (well-being according to juristic preferences). The Prophet Muhammad had assigned values to smaller denominations of the Islamic Dinar (gold and silver currency) called *danaq* and *mithqal* in terms of basic foodstuffs (Allouche, 1994; Choudhury, 1997c).

These developments in the history of Islamic economic thought amply establish the fact that currency as money was always thought of in terms of its required spending power in acquiring the dynamic basic-needs of life. Financing of the dynamic basic-needs regime of development mobilizes real and financial resources in the direction of the Islamic law governing

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<sup>3</sup> *Qur'an* (36:36): “Glory is to Him, Who has created all in pairs of that which the earth produces, as well as of their (own) human kind, and of that which they know not.”

<sup>4</sup> The design of pervasively connected and diversely rich world-system is one that is morally induced by laws, reason, and directions to create well-being and plenty. On this the *Qur'an* (14:24–25) declares: “See you not how Allah sets forth a parable? A goodly word like a goodly tree, whose root is firmly fixed, and its branches (reach) to the sky, giving its fruit at all times, by the leave of its Lord, and Allah sets forth parables for mankind in order that they may remember.”



money, finance, and real economy inter-linkages within the goal of attaining well-being.

#### ***14.7. The episteme of unity of knowledge: is it a tall call?***

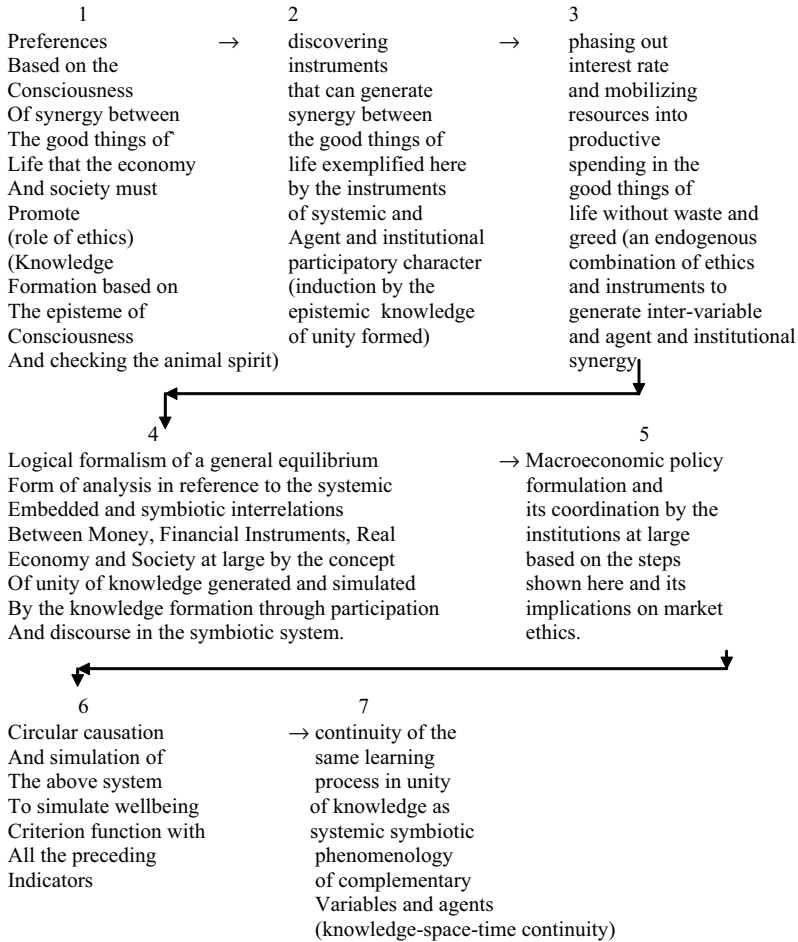
So at the end, can it be expected that the drawing boards of economic and financial gurus will embrace the episteme of unity of knowledge as in Islam to reconstruct the fallen world into ethical and material sustainability? Hardly do we expect this to happen. That impossible task is not the intent of this chapter. The chapter merely points out the logical formalism of this altogether different worldview of socio-scientific rethinking. But after this, the essential elements of organic linkages involving the circular causation interrelations provide the way out and put the economic and financial system along the path toward economic stabilization, growth, and sustainability:

The extensive learning process as a functional phenomenological ontology will require continuous and vigorous discourse within the western and Islamic civilization and other cultures and across them on the groundwork of unity of knowledge in relation to the economic, financial, and social world-system. This would invoke a combination of socio-scientific discourses in the problem areas through interfaith dialogues. There is much scientific and technological know-how in the West that can be used to promote the socio-scientific formalism of unity of knowledge according to the Islamic worldview. Conversely, there is always much that Islam can bestow by way of knowledge of the methodology of unity of knowledge in relation to the world-system, from which the world can gain. But the essentials of the learning universe with its particularity, and the global economics, finance, and society at large cannot depart from the kind of schematic development of thought and its application that we pointed out in [Figure 14.2](#) or its diverse prototypes.

In summary therefore, why is it necessary to study the epistemic origin of unity of knowledge in relation to the world-system, and the reconstructive model, and the failed model of global capitalism in accordance with rationalism as the episteme of liberalism? It is to erect the new economic and social thought in the midst of complex processes that pervasively generate complementarities between the ethically induced choices. Such an extensively complementary and participatory view is expressed by the organic unity between money, finance, and real economy in accordance with the reconstruction of ethical preferences in individuals and social preferences in institutions.

Neither rationalism nor liberalism, and thereby global capitalism, can answer these impending questions and designs of pervasive complementarities in the light of symbiotic views. Ethics is always an exogenous element

**Figure 14.2. A phenomenological model of learning for a symbiotic system of relations between economy, finance, and society**



in these systems, not the endogenously embedded core of the learning, discursive, and unitary worldview of moral consciousness. Buchanan (1999a, 1999b) writes emphatically on this point.<sup>5</sup>

In the Money–Commodity–Money (M–C–M) model, which was so much discussed by Marx, we also find the process whereby money increases

<sup>5</sup> Buchanan (1990) writes, “If we can disregard the revival of fundamentalism, notably in Islam, we can refer to this century as one ‘without God.’”

itself in volume and circulation in the economy.<sup>6</sup> The idea is that accumulation of capital that finances economic growth and sustainability is formed through the productive returns of commodity production. Such returns arise from trade and exchange in the good things of life. Contrarily, interest rates of all kinds and denominations impede resource mobilization by breaking down the complementarities between money, finance, and the real economy. This is a reality that is not accessible to the economics based on opportunity cost of resource allocation under conditions of scarcity and competition of the economic world that does not learn, and in which diminishing returns to scale as a condition of steady-state equilibrium and optimal resource allocation halts the learning process (Shackle, 1971). Technology and institutions remain exogenous or are endogenously hegemonic in imposing preferences (Becker, 1989).

#### ***14.8. The ineptness of prevalent response of Islamic economics to the crisis***

In the financial and economic field, Islamic banks have mushroomed under an Islamicization agenda. Yet the foundation and principles of Islamic banks give no comprehensive vision of a background intellectual mass of ideas on how to transform the prevailing environment of interest-transactions into an interest-free system. How do the economic and financial sectors determine risk-diversification and prospective diversity of investment and production, thus *mobilizing* financial resources in the real economy along *shari'ah* (Islamic law) determined opportunities?

The financial reports of Islamic banks show an inordinately large proportion of resources floating in foreign trade financing. These portfolios have only to do with sheer mercantilist business returns by charging a mark-up on merchandise in trade. This mark-up is called *murabaha*. Such a mark-up has nothing in common with real economic transformation arising from the use of trade financing. Consequently, the mobilization of resources through foreign trade financing alone has neither helped to increase intercommunal trade financing in Muslim countries nor to increase returns through development prospects in the real economic sectors undertaking foreign trade financing.

Islamic banks have not constructed a program of comprehensive development by rethinking the nature of money in Islam in terms of the intrinsic relationship between money as a moral and social necessity linked endogenously to real economic activities. Here endogenous money value is reflected only on the returns obtained from the mobilization of real sectoral resources that money serves to monetize according to the *shari'ah*.

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<sup>6</sup> Heilbroner (1985, p. 146) writes, "The structural logic of accumulation therefore begins from the powerful tendency of capital to develop its productive forces – a tendency we are familiar with as an integral aspect of the M-C-M' circuit."

Money does not have any intrinsic value of its own apart from the value of the precious metals that are to be found in real sector production of the currency. The structural change leading to such money, society, finance, and economic transformation has not been possible by Islamic banks. Contrarily, Islamic banks today are simply pursuing goals of efficiency and profitability within the globalization agenda as sponsored by the West and her international development finance organizations. Thus, Islamic banks are found to have launched a neoliberal model of economic competition in the midst of privatization, market openness, rent-seeking economic behavior, and financial competition. This is contrary to promoting cooperation between themselves and other financial institutions and sectors.

A study carried out by Choudhury (1999a) showed that although deposits have risen phenomenally in Islamic banks as a whole, the rate of profitability (distributed dividends/deposit) remained low at 1.66%. The investment portfolio of Islamic banks is overly biased toward foreign trade financing and equity financing. Yet as is known, equity financing is destined to be highly risky when adequate sectoral diversification and progressive production and investments remain impossible for Islamic financial and nonbanking institutions.

We therefore infer that the high level of deposits in Islamic banks comes from the sincere desire of Muslims to turn to meaningful modes of Islamic financing. The dynamics of Islamic transformation and an equitable and participatory framework of business operations as forms of Islamic relations have received marginal attention at the social and institutional levels and in reference to Islamic socioeconomic transformation.

#### ***14.9. The Malaysian Islamic economic fiasco***

Statistical interpretations for the distribution of investments by financing instruments are similar to those for sectoral allocation of investment. Besides, the pattern of such allocation was similar between Islamic banks and commercial banks in Malaysia during the period 2002–2006 by quarters. The inference drawn goes strongly against the expected Islamic mode of financing in participatory development-financing instruments and in favor of secondary financing instruments, which have doubtful legitimacy as Islamic investment modes in view of their management approach in Islamic banks. These have applications that are not different from the time-valuation methods, which commercial banks use at large.

Paradoxically, commercial banks appear to enjoy the cost-plus pricing mode of financing more than Islamic banks. This brings out the incipient decline in Islamic financing instruments by Islamic banks, while the cost-plus pricing method of Islamic financing instrument is questionable as it is presently practiced in the economy-wide case. The implication is damaging for Islamic banks in the perspective of the Islamic call for socioeconomic development, provision of the good things of life, and

establishing a participatory economic, financial, and social system along with pertinent policy measures so embedded in this kind of systemic unification framework vis-à-vis the Islamic episteme of unity of knowledge according to the precept of oneness of the divine law and the world-system.

The further implication of the statistical results on a trend-basis for the stated time period is that neither Islamic banks nor commercial banks played identifiable role in productive transformation of the Malaysian economy. All the contributions to share-value and economic growth came from the secondary financial markets. In the end, a significant substitution of resources took place in favor of the financial sector and financing instruments away from productive possibilities. These are unhealthy signs of a looming bubble in the economy, like the one that was faced by Malaysia during 1994–1996 causing the financial crunch then, as was foreseen by Jomo (1992) and Ali (1992). Abdullah *et al.* (2007) pointed out that Malaysian Islamic unit trust funds did not perform any better than conventional unit trust funds in regular times. Also the funds were poorly diversified and did not reach the 50% level of diversification required for a sound portfolio.

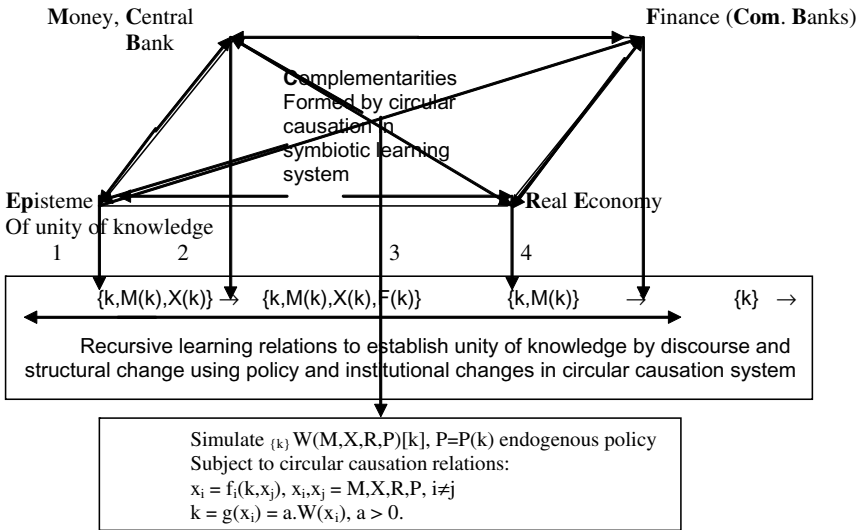
**14.10. The model of money, finance, and real economy linkages in the light of unity of knowledge causing social well-being**

The mathematical formalization of the schema of Figures 14.2 and 14.3 yields the general equilibrium model of circular causation relations for simulating well-being. This is shown in the footnote.<sup>7</sup> The money, finance, real economic system according to induction by knowledge-induced dynamic preferences is schematized in Figure 14.3 and explained below.

<sup>7</sup> A formal version of the above schema is this:

1	2	3	4	5	6
$\{\theta, Pr(\theta)\}$ = $\{\theta\}$	$\rho\{\theta\} = \rho$	$\{\theta, x(\theta), \rho\}$ = $\{\theta, z(\theta)\}$	repeat (3) for a A three-sector Model, {money ( $M(\theta)$ ), Finance circular ( $\rho$ ), real conomy ( $x(\theta)$ ), thus the relations vector $\{\theta, z(\theta)\}$ between the variables	simulate Well-being $W(\theta, z(\theta))$ subject to ↓ ↓ ↓ ↓ (Sim <sub>k</sub> $W(\theta, z(\theta))$ ) s.t functions showing interrelations between the ( $\theta, z(\theta)$ )-variables	policy and prescriptions on change in structure institutions and thought by discourse and logical formalism

**Figure 14.3. Complementary relations of an epistemologically driven general equilibrium circular causation system in money, finance, real economy with policy induction**



**14.11. The implications of complementary circular causation relations between money, finance, real economy, policies, and social and institutional variables**

The relationship,  $M = f_1(k^+, F^+, X^+, P^\pm)[k]$ ;  $[k]$  indicating induction of all the variables inside (...), means that the quantity of money has to be controlled ( $P^\pm$ ) in the circular causation relations such that financial instruments link up with the mobilization of quantity of money ( $M$ ) to establish complementary relations with the real economy vector ( $X$ ) (e.g., real GDP, employment, price stability, growth, trade, and distributive equity). Such policy-variables ( $P$ ) are cooperative ones within a climate of participation and complementarities between the variables shown. But sustainability of this complementary system with price stability requires that monetary transmission into the real economy must be proportionate to the requirements of the cooperative projects and outlets. Any excess of monetary transmission will be inflationary and harmful for the real productivity of the projects.

Examples of  $F$  are profit-sharing, equity-participation, joint ventures, cofinancing, mark-up cost-pricing, and such secondary financing instruments that also revolve around the primal ones of profit-sharing and equity-participation. The choice of projects must be in accordance with the sustainability of the  $X$ -vector in the real economy to generate the simulated levels of well-being.

The signs of the coefficients in the relationship,  $F = f_2(k^+, M^+, X^+, P^\pm)[k]$  give the same meanings as above in relation to complementarities between  $(M, F, X)[k]$  with the use of  $P$ -policy vector to help attain and sustain the complementarities.

Similar explanation can be attached to the circular causation relationship,  $X = f_3(k^+, M^+, F^+, P^\pm)[k]$ . This in itself is a multiple-equations system in respect of the vector  $X$ . Thus an extensive system of circular causation relations is opened up for study and estimation. Within this extended system there will be inter- $X$  vector circular causation relations along with their  $(M, F, X)[k]$  relations, all based on the principle of inter-variable complementarities.

Finally, we note that the principle of pervasive complementarities is derived from the recursive learning and discursive processes that are enabled by the continuous induction of every such learning process by consciousness of unity of knowledge in the systemic sense of "pairing" or symbiosis between the variables representing the good things of life, like the Rawlsian primary mentioned earlier. Such an ethical idea is also used by Hammond (1989) in his reconstruction of Harsanyi's fundamental utilitarian function as a welfare function.

In our case of social well-being function we equate well-being with the measure of degree of complementarities gained by estimation and reconstruction of the circular causation system by simulating the  $k$ -parameters across the  $(M, F, X, P)$  variables as explained earlier. The estimated and reconstructed social well-being function is given by the empirical version of  $k = f_4(M^+, F^+, X^+, P^\pm)[k]$ . The signs of the coefficients are explained as before in the sense of learning and consciousness by discourse emerging from and recursively leading to participatory unity. Thus unifying experience leads to systemic symbiosis.

From the above formalism it is obvious that money in the symbiotic sense with finance, real economy, and society at large is a microeconomic entity. The theory of money and the real economy in this sense arises from a definition and analytical treatment of micro-money pursuing projects and spending through the relationship of commercial banks and the central bank. The quantity of money so pursuing the demand of projects equals the value of spending in the project or groups of projects, all linked to each other by circular causation relations between them.

In such a case we interpret the quantity of micro-money ( $M_i$ ) meeting the needs of a project ( $i$ ) or other spending outlets as the total amount of spending ( $P_i Y_i$ ) required for that project. That is,  $M_i V_i = P_i Y_i$ , with project-specific velocity of money circulation,  $V_i \approx 1$ .  $P_i$  denotes prices and  $Y_i$  denotes specific output, so that  $P_i Y_i$  is nominal output for project  $i = 1, 2, \dots, n$  number of projects. The total quantity of money in circulation across all projects and sources of output is  $M = \sum_i M_i = \sum_i P_i Y_i$ ;  $V_i \approx 1$ , for each  $i = 1, 2, \dots, n$ .

The above project-specific (spending-specific) concept of micro-money increases the role of banks in mobilizing money into the real economy by the use of participatory financial instruments. A special kind of monetary transmission mechanism is now necessary to realize the productive mobilization of savings into the real economy, so that no savings is withheld to earn interest rates, and savings = investment at every time. It is important to note that in such a money and real economy circular causation relations with the use of financial instruments, productive mobilization of money through financing resources in the good things of life is necessary, and the condition of savings = investment everywhere in the life of the economy narrows down the frequency of business cycles. Consequently, interest rates in bank savings as holding in idle financial resources are redundant. Instead, interest rates are replaced by participatory development-financing instruments.

#### ***14.12. The 100% reserve requirement monetary system***

A 100% reserve requirement micro-monetary system (100% Reserve Requirement Monetary System (RRMS)) is formed. But we must understand the meaning of this concept, which is quite different from the idea of 100% reserve requirement monetary system in which the central bank has the full authority to maintain the full reserve. Commercial banks cannot hold reserve. In our definition of the concept, the central bank receives the full deposit of the unmobilized funds through the commercial banks into the real economy. This residual reserve is 100% protected by a proportionate stock of gold and silver as bimetallic bullion. A good coverage with arguments similar to the ones presented in this paper appears in Lauchlin Currie's historic paper (1937 reprinted 2004).

Furthermore, the concept of 100%RRMS means in our case those commercial banks are allowed to hold the 100% of the deposits to mobilize them into productive investments and spending in the good things of life. Only in the case when savings in the form of money in circulation is not fully mobilized then the unmobilized bank savings are deposited with the central bank. This is a residual case of the central bank and commercial bank relationship in safekeeping and protecting the value of money in reserve deposit and in circulation. The central bank backs up the value of the unmobilized savings in its safekeeping by such a proportionate amount of bimetallic bullion (gold and silver).

It can be noted that only a small amount of gold is required for this function in inverse proportion to the quantity of money mobilized. The higher is the quantity of money mobilized through the commercial banks into the real economy the smaller are the residual savings transferred to the central bank by the commercial banks. Hence a smaller quantity of gold is needed to protect the value of the residual reserve with the central bank.



Besides, this small quantity of gold protects the overall currency value of total quantity of money. This equals money in circulation plus the residual reserve that is fully held in the central bank.<sup>8</sup>

The implication of 100%RRMS is wider. Since foreign trade is an important outlet of resource mobilization, therefore, the market catalytic effect of 100%RRMS exists. Mydin and Larbani (2004) point out that a small amount of gold as the bimetallic bullion standard can support a large volume of trade. For this reason we refer to the 100%RRMS as being backed by the gold standard. Gold was a fairly stable asset until the end of the Bretton Woods Arrangement in the 1960s and proved to be a stable monetary base over a long time. Later on, it was the self-interest of large bankers and their national governments that ended the gold standard, and central banks turned to paper money with fractional reserve requirement monetary system. Multiple credit creation is the consequence of creating large sums of paper money without any asset backing. The study of the relations between money, price, output, and the real economy is thereby a fascinating intellectual enterprise (Bordo, 1989).

***14.13. Institutional Implications: banking relations in the 100% reserve requirement monetary system interconnecting money, finance, and the real economy***

Figure 14.4 explains the participatory interrelationships between the Central Bank and Commercial Banks to bring about money–finance–real economy symbiotic linkages. Arrows 1 and 2 denote the flow of the quantity of currency as money in circulation through the commercial bank and the central bank in response to real economic demand. Arrow 3 denotes the interbank and other clientele needs of the real economy arising

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<sup>8</sup> Let total quantity of money ( $M^*$ ) equal the money in circulation ( $M$ ) and the amount not mobilized and remaining in savings with the central bank ( $S$ ). Let  $G$  denote the quantity of gold as asset to support the value of currency in savings with the central bank.

We write therefore,  $M^* = M + S$ . This is similar to the equation of total reserve = cash in vault + statutory reserve. But in our case  $S$  is a residual, not a policy requirement by the central bank.

With the gold standard,  $S/G = a = (M^* - M)/G = (M^*/G) + (M/G)$ .

The coefficient “ $a$ ” is a policy variable to set the quantity of gold required to shore the unmobilized funds that stays with the central bank, so that it does not create multiple credit creation if it were to stay with the commercial bank. The multiple credit creation is a subtle mechanism to create excess amount of money and unleash interbank lending interest rate. As an assigned coefficient, “ $a$ ” gives  $da = 0$ . That is,  $d(M/G) = d(M^*/G)$ . This result implies that stability by gold-backing of the money in circulation equals the stability of total quantity of money. Hence the stock of gold used to stabilize the value of  $S$  also stabilizes the quantity of money in circulation.

from within a continuous need for quantities of currency to finance real economic activities. This amount of deposits belongs to the central bank whose currency stock it is. These deposits limit an excess production of additional currency stocks. However, suitable mechanisms can be developed between the central bank and the commercial banks to efficiently circulate the interbank borrowing and other deposits into real economic transactions as needed under the supervision by the central bank through its networking with the commercial banks. The arrow 4 shows this possibility. Other new currency flows needed for financing real economic activities are indicated by arrow 5.

The same mechanism exists in the case of an excess demand for a quantity of money to finance real economic transactions. The central bank can produce additional currency and also use its commercial bank residual reserve deposits to finance this excess demand. In this way, any excess demand is perpetually removed. Thus no price pressure can exist, which otherwise would be caused by a shortage or excess of liquidity.

Since arrows 3, 4 (hence 7,8) represent exact matching of demand with the quantity of money to finance such real economic activities, therefore, there cannot exist any excess demand or supply of money. Thereby, money-market unstable consequences on prices and real output cannot exist. In other words, the growth of currency = growth of demand for real economic transactions = growth of output = real rate of productive return. In an economy that moves according to the dynamic basic-needs regimes of development there would be steady states for these various rates.

This however requires active functioning of the two levels in the banking system, namely, the discursive organization and the cooperative venture relationship. Such relationships are instrumental in the knowledge formation of the system. Knowledge formation is measured by active policies, performance of cooperative instruments, and discourse. All of these conditions are accounted for in terms of ordinal weights in the learning  $k$ -values.

#### ***14.13.1. Central bank: produces and manages stock of currency and oversees the money–economy relationship***

Central bank produces currency stock = Dinar 100,000. Central bank maintains Dinar 100,000 level by producing residual stock of currency. The central bank can also produce stock in view of expected excess demand of the real economy.

Reserve ratio = 100%

Central bank oversees the money-real economy relations in view of economic development and social perspectives both for the closed and open economy. Hence, domestic and external sector stabilization is part of the overall goals of the central bank to guide the allocation of funds. To

stabilize the external sector the central bank links exchange rate determination to productivity. Consequently, terms-of-trade and balance of payments in current and capital accounts are sustained. See below for formalization relating to these.

The 100%RRMS realizes stability and sustainability of the economy in the midst of a dynamic life-fulfilling regime of development. The otherwise growth-oriented and lifetime cycle of capital accumulation through interest-based savings and economic growth are not the goals. These are replaced by the singular goal of simulating social well-being as the criterion of estimating the degree of systemic unity attained between the symbiotic relations of money, finance, real economy, and society. Details in this regard were explained earlier. The well-being function based on dynamic life-fulfilling goods and services becomes the criterion for reading sustainable stability and moral worth through the money–finance–real economy circular causation interrelationships. The interplay between stages of institutional organization and market transformation explains the circular causation model. That is, the interactive interface is explained by the underlying systemic participatory and institutional discursive relations between institutions and markets. The relational order is denoted by the circular flows of arrows in Figure 14.4. It implies the principle of pervasive complementarities with diversity.

#### **14.14. Economic productivity in 100%RRMS**

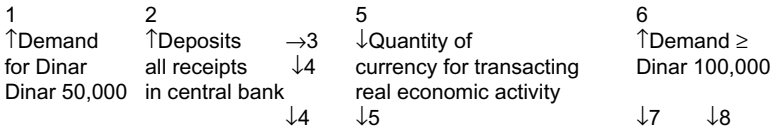
We need to understand the productivity relation in the 100%RRMS. The usual definition of productivity is now understood in terms of the underlying knowledge-simulation in the 100%RRMS relating to discursive and organic relations between the central bank, commercial banks (Islamic banks), and the variables of finance and the real economic economy.

Labor productivity is defined by,  $\rho_L(\theta) = Y(\theta)/L(\theta)$ , where  $L$  is a factor input (particularized to labor) in the production function that is now of the form,  $Y(\theta) = F(L,K)[\theta]$ , so that labor  $L$  is complementary with capital  $K$  through the knowledge variable “ $\theta$ ” that defines the interactive, integrative, and dynamically evolutionary processes describing all relations in the Islamic world-system. Total productivity is defined by  $Y(\theta)$ , this being distributed between labor and capital in a complementary way. There now comes about increasing returns to scale in the production function. On a simplified basis we also note the following production relations (Choudhury, 1998b):

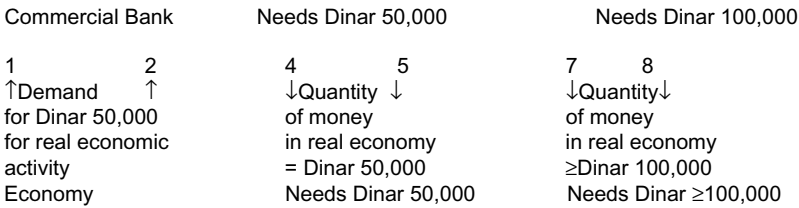
$$\text{Total productivity, } Y(\theta) = \frac{\rho_L(\theta)L(\theta) + \rho_K(\theta)K(\theta)}{2} \quad (14.1)$$

The right-hand side of expression (14.1) is a simulated parametric relationship in terms of a combination of institutional and market forces.

**Figure 14.4. Discursive relationships according to the episteme of unity of knowledge**



Co-operative Venture Relationship between Commercial Bank and Clientele in the Real Economy



Thus,  $L(\theta)$  and  $K(\theta)$  are complementary to each other with respect to the simulation of  $k$ -values in the sense of 100%RRMS.

In the end, we note that in 100%RRMS the rate of growth currency money equals the rate of growth of output with prices and rates of return on assets remaining stable. The utilization of factors of production is also based on organic complementarities in terms of the unifying relationships between their factor productivities.

**14.15. Macroeconomic policy implications of micro-money in 100%RRMS**

All policies, financing instruments, and institutional reformation matters are endogenous in nature by virtue of their learning and knowledge induction derived from the given epistemic premise of unity of knowledge. Thereby, money turns out to be a quantity of currencies that pursues projects. Contrary to such micro-level nature of money–finance–real economy circular causation interrelations governed by the principle of complementarities, macroeconomic monetary, and fiscal policy instruments remain unnecessary in the detailed understanding of the underlying dynamics of economic projects. Yet for reasons of making economic forecasts it may be necessary to consider some semblance of macro-economic models to make estimates on the general state of the economy.

A sample of projects representing diversified portfolio and different levels of society could therefore be selected to enable estimation on the state of the economy concerning money, finance, real economy, and social well-being. In other words, such estimation is the result of establishing the appropriate kinds of complementary projects upon which the sample

estimation can be done and the policy forecasts can be accomplished. The data for such estimation come from the microeconomic levels of money–finance–real economy interrelations.

In our case, unlike the macroeconomic LM-curve of monetary equilibrium, and thereby, the IS-curve of fiscal equilibrium, we have a system of circular causation between the variables. These conditions help to generate pervasive and new levels of heightened complementarities between them together with the 100%RRMS attaining its heightened state of money–finance–real economy complementarities. The implications of the participatory policy-variables and of the epistemic premise of unity of knowledge are implied.<sup>9</sup>

The income multiplier results in the two cases are quite different. According to the IS–LM general macroeconomic equilibrium, interest rates cause limitation of the output variable to attain the full-employment real GDP. In the case of 100%RRMS the prototype of the monetary equilibrium and expenditure variables follow positive trends by the force of learning ( $k$ ). The two trajectories of monetary and fiscal equilibriums across learning processes in output and the rest of the principal macroeconomic indicators are thereby simultaneously described by evolutionary learning equilibriums (Choudhury, 2006d).

In the conventional IS–LM shifts a similar trajectory would be described by simultaneous shifts in the general equilibriums under the impact of productive spending and monetary expansion. This result is consistent with the case of either a low level of interest rate or low level of liquidity traps where the interest rate remains low (Venieris and Sebold, 1977). Contrary to such shifts, the effects of real values of spending and

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<sup>9</sup> At the background of simulating the complementarities between the variables of social well-being function are the two particular equations on money ( $M$ ) and expenditure ( $I$ ), respectively. These are namely,

$$M(\theta) = f_1(\theta^+, F^+, I^+, P^\pm)[\theta]$$

$$I(\theta) = f_2(\theta^+, F^+, M^+, P^\pm)[k]$$

All variables were defined earlier.

According to the banking relations of 100%RRMS,  $I(\theta) = bM(\theta)$ ,  $b$  being a coefficient. This relationship is true at each level of learning estimated by “ $\theta$ ”. Besides, the continuity of “ $\theta$ ” takes place over time. Hence,  $I(\theta) = bM(\theta)$  everywhere along “ $\theta$ ” and time, with  $b \rightarrow 1$  as financial resources get fully mobilized by commercial banks. Note that because of the microeconomic nature of spending relations, the idea of fiscal expansion is not limited to government expenditure. Hence we have subsumed all forms of spending in the good things of life in the variable “ $I$ ”. Hence the LM and IS curves are elastically convergent on each other in tandem with the extent that the policy-variables and institutional transformation strategic variables ( $P$ ) are activated to attain better states of the 100%RRMS. They revolve around the attainment of effective participatory development-financing variables.

GDP would be dampened by the increasing real rate of interest. The financial stabilizing effect of lower prime rates of interest is known to be effective for economic stimulation across the world during times of financial volatility and economic crisis.

#### 14.16. Short-run and long-run implications of policy simulation

The coterminous evolution of investment and quantity of money curves in the 100%RRMS, and thereby, the positive relationship between financing instruments and the real GDP are principally influenced by the impact of “ $\theta$ .” Thereby, the question of short-run and long-run adjustment in the investment-money relations with respect to the real rate of return (“ $r$ ”) and real output ( $Y$ ) is resolved by the simulation of these relations in respect of “ $r$ ”-values.

Figure 14.5 shows that in one case the adjustment to evolutionary general equilibrium between money and investment ( $ee$ ) in respect of  $(r, Y)[\theta]$  causes the investment curve to adjust toward the money curve with expanding levels of  $(r, Y)[\theta]$ . In another case, an equivalent adjustment is caused by the money curve adjusting toward the investment curve with expanding levels of  $(r, Y)[\theta]$ . Note the evolutionary learning equilibrium path is  $e'e'$ .

These adjustments mean respectively, that the quantity of money in excess of investment first causes the central bank to hold the unmobilized funds ( $S$ ) as the 100% reserve requirement. Subsequently, as  $r$  increases in the real economy causing  $Y$  to increase by the complementary effect, then investment demand increases. This call for additional funds liquidates the withheld reserve in the central bank. Now the difference between the quantity of money and investment demand falls as  $(r, Y)[\theta]$  increases by the money-investment, money, finance, and real economy complementarities.<sup>10</sup>

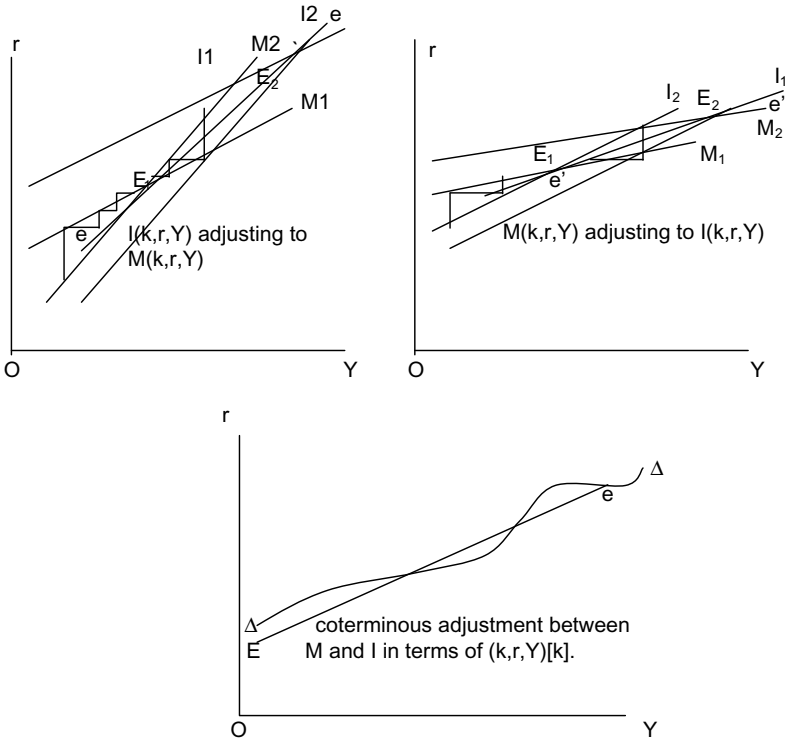
The equilibrium toward  $E_1$  from the region  $M_1$  being in excess of  $I_1$  is explained as follows: The excess of investment demand over the quantity of money available to finance it suppresses “ $r$ .” Consequently,  $Y$  decreases as well, until the complementary relations between money and investment, that is, between money, finance, and real economy, are established at the equilibrium point  $E_1$ .

Second, the way toward simulated evolutionary equilibriums by the force of learning ( $\theta$ ) is for  $M$  to adjust toward  $I$ . This happens when an

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<sup>10</sup> Let  $\Delta = |M - I|$ , then  $d\Delta/dk = (\partial\Delta/\partial Y)(dY/dk) + (\partial\Delta/\partial r)(dr/dk) < 0$  by the tatonement effect of equilibrium. Since,  $k$  affects positively both  $Y$  and  $r$ , therefore,  $dY/dk > 0$ ;  $dr/dk > 0$ . By the equilibrium effect,  $(\partial\Delta/\partial Y)$  and  $(\partial\Delta/\partial r)$  must be individually negative.

**Figure 14.5. Evolutionary learning equilibriums in the money–finance–real economy complementary relations**



excess demand for investment either liquidates the quantity of money in reserve ( $S$ ) with the central bank in 100%RRMS, or creates new money to finance the excess investment demand. Now  $(r, Y)[\theta]$  increases along such adjustment, as in the first case. The equilibrium adjustment at  $E_1$  from the region of  $I > M$  can be explained as in the first case.

The process continues until the equilibrium  $E_1$  is established, but only to evolve into subsequent levels of similar evolutionary  $E$ 's (as shown), which are established by the shifting investment and money curves under the impact of evolution into higher learning processes under the greater effects of complementarities, institutional change, and diversification of production (technologically induced production menus) and financial risk (new financial instruments).

The evolutionary processes (along the trajectories  $ee$  and  $e'e'$ ) are the consequences of continuous learning. But every such process is the result of short-run learning and adjustment. Therefore, there is no tenable concept of the long-run (across evolutionary processes) that remains independent of the short-run (intra-process) learning.

The evolutionary equilibrium path is now shown in [Figure 14.5](#). It remains fairly coterminous between  $I$  and  $M$  curves under the monotonically positive impact of learning that causes unity of relations (complementarities) between money, finance, and real economy symbiotic interactions.

The equations of relations between  $M$ ,  $I$  in terms of  $(k, r, Y)[\theta]$  are of the following form:  $I = bM$  yields  $r = f(\theta, Y)$ . Hence we have the  $(r, Y)[\theta]$  coordinates. The curves connecting these coordinates yield the investment and money curves as shown. The evolutionary equilibrium adjustment between these ( $\Delta$ ) is equivalent to the money, finance, and real economy complementarities as the sure conceptual and applied sign of unity of knowledge in this world-system. But this can be obtained only in the presence of participatory financing instruments that replace the interest rates of every kind. The reconstructive circular causation relations between the organic variables indicate the transformation to be brought about by activating relevant institutional changes and adopting policy strategies toward attaining all of these.

#### **14.17. Conclusion**

The economic and financial paradigms upon which the world stood for quite sometime ago had first lost its validity during the Great Depression. It then required the philosophical and insightful acumen of John Maynard Keynes to rescue economic theory from its inability in stabilizing the fallen economy out of the desuetude of neoclassical economy and financial theory. In our present juncture the world has come to face another bitter reality. This is marked by the emptiness of all of economic theory toward addressing the sustainability issue of the global economy, which is teetering in financial and economic crisis. The very high cost on tax-payers money to rescue big banks, insurance companies, and nonbank financial companies from bankruptcies has already proved that the high finance and macroeconomic ideas of so-called economic fundamentals are flawed, even after Keynes and government protection by deficit financing and expansionary monetary and fiscal policies.

We have argued in this chapter that a thorough rethinking of both economic theory and its application must be discovered to create a sustainable world-system of money, finance, and real economy inter-relationship with the objective of attaining social well-being.

We have argued this theme and constructed alternative economic and financial argumentation in the light of the episteme of systemic unity of knowledge. We asked the question: Where is such an abiding episteme to be found, one that stands upon learning by pervasive complementarities between variables and agents and activates institutional changes to attain such systemic unity? We discovered that possibility of systemic unity in the



Islamic worldview. It rests on the functional ontology of divine oneness in the order of “everything.” Upon this epistemic background and its functional ontology a brave new world of economic and financial reconstruction was proposed for attaining social well-being as a criterion signifying the measure of systemic unity between the good choices of life.

The challenge of replacing interest rate instrument by participatory instruments of cooperation and organic complementarities and their various implications on money–finance–real economy interrelations, and sustainability by discursive learning was formalized. This is the field of epistemological understanding and application of the paradigm of Islamic economics and finance in the light of its core episteme of oneness across learning domains of human experience.

#### ***14.A.1. Statistical Appendix***

The following information is gathered from Wikipedia (internet version) entitled “Subprime mortgage crisis”:

##### ***14.A.1.1. During the period 2007–2008***

1.3 million housing properties were subject to foreclosure, up 79% since 2006. The value of US subprime mortgage amounted to USD 1.3 trillion as of March 2007. Of this, 16% of the subprime loans were 90-days delinquent and declared for foreclosure. By January 2008, the delinquent rate had risen to 21% and by May 2008 the subprime delinquency rate was 25%. By August 2008 this value also amounted to 9.2% delinquent and foreclosed loans out of USD 12 trillion value of US mortgage market. During 2007 approximately 1.3 trillion US properties were up for foreclosure. This was an increase in foreclosure of 79% above the level for 2006. Taking advantage of low subprime rates and the foreign investments that were flowing into the US housing and mortgage market an average house owner increased loans on housing property to 130% of household income in 2007. The “greed”-driven preferences of average American caused household spending to stand at USD 800 billion per year in excess of earned incomes. Household debt thus grew from USD 680 billion in 1974 to USD 14 trillion in 2008.

By March 2008, the value of mortgage payment on an average homeowner in 8.8 million homeowners exceeded the value of the housing property. This caused the incentive by owners to declare foreclosure. Resulting from this, a record of 4 million houses remained unsold and another 2.9 million remained vacant by January 2008. The excess supply of unsold and vacant houses caused a drop in average house price by 18.4% between November 2007 and May 2008. The securitized share of subprime

mortgage among poor credit owners increased from 54% in 2001 to 75% in 2006.

Bank and other financial institution losses globally equaled USD 435 billion as of July 2008. US Housing Department and banks issued low-interest loans to homebuyers in the face of expected loan default. Thus many financial institutions borrowed enormous amount of money and made out enormous investments in mortgage-backed securities between 2004 and 2007. The top five US investment banks borrowed at low rates and loaned amounts at higher rates (financial leverage) to the level of USD 4.1 trillion in debt (by borrowing) during 2007, which equaled 30% of the US economy.

On September 14, 2008 George Bush announced a banking bailout fund and subprime mortgage assistance amounting up to USD 700 billion. On October 10, 2008 the Dow-Jones Index declined by a record of 22%, the worst week in the 118-year history of Dow-Jones.

Between January 1, 2008 and October 10, 2008 owners of stocks in US corporations suffered a total of USD 8 trillion, from USD 20 trillion to USD 12 trillion in the United States. In other countries losses amounted to 40% of their stock value. On September 29, the Dow-Jones Index tumbled 7%, the worst in its record. NASDAQ tumbled 9.1% and S&P was down by 8.8%. These declining trends continued well beyond this date as sales reports and industrial production statistics together with fears of a long and deep recession continued.



# **CONCLUDING PERSPECTIVES**



## CHAPTER 15

# *The Economic Queen has Soured: It's Time for Change*

### **15.1. Introduction**

For long now the economics profession has boasted of Economics as the Queen of the Social Sciences. That was the era when Economics matured under the shade of a classical notion of the physical universe, whose properties it imported into rational choice. Economics emulated the mathematical methods of optimization and equilibrium behavior and overarched these methods between microeconomics and macroeconomics in the areas of economic growth, public choice theory, rational expectations, constitutional economics, and many others. Each of these branches of economics remained entrenched in rational choice behavior exported from the microlevel to institutional and collective norms. In this way, a unique and universal premise of self-interest, individualism and independence, and completeness of rational choice assumptions was extended to the institutional level. Thus, the rational choice behavior of individualism became the principle of methodological individualism of liberal institutionalism.

Buchanan and Tullock write about such overarching nature of economic theory and rational choice as its heart in the following words:

Concomitant with methodological individualism as a component of the hard core is the postulate of rational choice, a postulate that is shared over all research programs in economics. (Buchanan, 1999a, 1999b, p. 391)

... all collective action may be converted to an economic dimension for the purposes of our model. Once this step is taken, we may extend the underlying economic conception of individual rationality to collective as well as to market choices. (Buchanan and Tullock, 1990, p. 34)

### **15.2. The issue of sustainability in focus**

The body and soul of economics overarching methodological individualism across all matters of market exchange, voting behavior, and institutional perks became an obsession with economists. This happened even under our eyes as scientism took the better of reality. But the problems of our economic, social, and political lives became complex and intertwined ever since. Such problems entered center stage in the study of learning processes as the underlying concept of sustainability. Sustainability is understood among economists as extension of noninflationary economic growth caused by balanced utilization of resources. On the other hand, social learning as the foundation of sustainability is based on organic fusion of unity by complementary and participatory relationships between the good things of life. The objective thereby is attainment of increasing levels of total well-being. In this concept of sustainability the human world is a product of the interrelationships between material exchange and social exchange. In this kind of social order, ethics and markets, choices and preferences, models and variables, individual and the social collective are embedded relational entities (Parsons and Smelser, 1956; Holton, 1992). What is good for one is good for all. What is good for all is good for anyone in the social group. Hence, the increase in welfare depends on the joint advancement of the good of all the agents and entities in diverse domains.

The wider field of exchange valuation between goods, services, and social becoming within the overarching principle of sustainability has rendered the methods of economics to be insufficient. The concept of process and participatory dynamics between interacting entities and agencies replace optimal and steady-state equilibrium with and without time, by the methods of continuous learning. This also forms the substantive meaning of sustainability. Economics as it is perceived today does not have the methods or methodology to explain intersystemic dynamics with learning processes and pervasive participation between them.

Yet another name of pervasive participation is “complementarities existing in continuums.” This principle once established and applied to the theme of economic problems within the comprehensive idea of sustainability is of massive proportion. Regarding this kind of process-based synergy of system-learning Herman Daly (1992, p. 32) writes: “The upshot of these considerations is that natural capital (natural resources) and human-made capital are complements rather than substitutes. The neoclassical assumption of near perfect substitutability between natural resources and human-made capital is a serious distortion of reality, the excuse of ‘analytical convenience’ notwithstanding.” Karl Polanyi (1977) questioned any trace of historical validity of the axiom of scarcity of resources, particularly in respect of land as resource. Polanyi thus denied the validity of the marginal substitution doctrine.

### ***15.3. What is the souring experience of the economics queen?***

The souring of Economics as idea and science has come from her failure to address the endless theme of sustainability. The methods and language of process, participatory dynamics, hence pervasive complementarities that open up opportunities for resource augmentation, all these and more are unavailable in age-old economic reasoning. Hence, Economics is no more equipped to answer relevant issues of the real world adequately. She does not have either the reasoning or the methodology to perform this function. Thus, the ageing economics has fallen out of grace and relevance.

#### ***15.3.1. A new and revolutionary paradigm to fill the gap in economic reasoning on sustainability***

What is the new and revolutionary paradigm to fill the gap left by a soured Economics? We will address this issue by examining a problem that has been noted by some recent economic gurus. In the European Central Bank (ECB) there is a concern today that the decreasing labor productivity is caused by an ineffective long-run monetary policy transmission to society. The consequences of a faulty monetary transmission through ineffective institutional policies and forecasting mediums are higher than required long-run interest rates and productivity decline that caused a slowing down of gains in real potential output, thereby fueling the fear of inflationary pressure. In the end, a combination of ineffective transmission of monetary policy caused by a failure of institutional reform and predictive power of adopted models, the looming prospect of inflationary pressure causing lower expected real potential output and decreasing labor productivity are symptoms of an unsustainable relationship between money and the real economy.

This problem is stated by Trichet, the president of ECB (2008) in the following words:

This confirms that the best contribution that monetary policy can make in order to foster sustainable economic growth and job creation is to maintain price stability. This is generally true, not just in response to productivity developments. A monetary policy that is credible in pursuing price stability and ensuring that inflation expectations remain well anchored will help to create a stable macroeconomic environment. This, in turn, will ensure the economy functions smoothly, facilitate firms' long-term planning and stimulate investment.

Furthermore, on the policy of effective monetary transmission the ECB, Papademos, Vice-President of ECB (2008) states:

Monetary policy transparency and communication are beneficial when they help the central bank to achieve its objectives by enhancing the understanding of the markets and the public of the policy aims, strategy and decisions, thereby offering clear guidance for the formation of expectations as well as reducing uncertainty.



#### 15.4. The need for economywide consciousness in monetary, finance, and real economy circular causation relations

By combining the monetary policy transmission approach with the real economy through the medium of financial instruments we can analyze the following relationship:

$$M = f(P, Y, r/i, \theta) \quad (15.1)$$

where  $M$  denotes the quantity of money;  $P$  denotes price level;  $Y$  denotes real output level;  $r$  is the rate of return and can be proxy for the rate of labor productivity;  $i$  denotes long-run interest rate;  $(r/i)$  denotes relative price-factor for resource mobilization between the real economy when  $(r/i)$  increases, or it decreases when resources are driven into the financial economy with savings mismatched with productive investment;  $\theta$  denotes the level of consciousness in public and investors that would make them understand the monetary transparency policy in relation to financial instruments and the real economy.

Because expression (15.1) is well defined in terms of the variables according to the instructions contained in the ECB prescription of maintaining price stability, therefore, an inverse implicit function “ $g$ ” of the function “ $f$ ” exists with a nonvanishing Jacobian (Hogg and Craig, 1965) and is of the form

$$P = g(M, Y, (r/i), \theta) \quad (15.2)$$

Now note the following differentiated expression:

$$\begin{aligned} dP/d\theta = & (\partial P/\partial M)(dM/d\theta) + (\partial P/\partial Y)(dY/d\theta) \\ & + (\partial P/\partial(r/i))(d(r/i)/d\theta) + \partial P/\partial\theta \end{aligned} \quad (15.3)$$

According to the optimal conditions attained under price stability in a sustainable growth environment involving monetary policy ( $M$ ), real potential output level ( $Y$ ), and effectiveness of the monetary transparency policy as suggested by ECB, expression (15.3) simplifies to expression (15.6):

$$(\partial P/\partial(r/i))(d(r/i)/d\theta) = 0 \quad (15.4)$$

$$\text{That is } (d(r/i)/d\theta) = 0 \quad (15.5)$$

$(\partial P/\partial(r/i))$  is not definitely equal to zero. Only increasing productivity ( $r$ ) relative to long-term interest rate ( $i$ ) will activate the real economy and generate price stability. But if  $(r/i)$  decreases then price stability will be defeated. ECB remains silent on the interest-rate mechanism in respect of a measure such as “ $r$ .”

Thus, from expression (15.5) we obtain the final relationship (after simplification)

$$dr/r > di/i \quad (15.6)$$

That is, the rate of increase in real economy return (total productivity) must exceed the rate of change in long-term interest rate to establish price stability under the joint action of monetary policy and its transmission through transparency effectiveness. The resulting policy therefore is that interest rate is an impediment to the growth of real economic growth with price stability and thereby sustainability. The inference is that effective monetary policy transmission via the transparency approach cannot be attained in any regime of interest rates.

### ***15.5. Opening up the ethical theme of money and real economy interrelationship***

Money and real economy interrelationship is an ethical issue. But it is a complex one that goes against prevalent economic reasoning, and builds upon its ruins a new worldview of ethics, society, economics, finance, institutionalism, and development. Let us examine the problem raised by expression (15.6) in a new light. The comparative percentage change between “ $r$ ” and “ $i$ ” in the perspective of the interrelationship between money and real economy, and thus to establish sustainability, now becomes a problem of allocation of financial and productive resources between the real sector and the financial sector. Received economic theory treats such an allocation in terms of the marginal rate of substitution between the real sector and financial sector. These are now seen to compete with each other on the assumption that resources are scarce.

Indeed, resource scarcity is the core problem of economic theory. Substitution of the financial sector for the real sector as competing sectors increases bank savings as withdrawals from the real sector as “ $i$ ” increases. Consequently, the mismatch between savings and investment makes business cycles as the principal cause of unsustainable economic growth. The effectiveness of monetary policy now goes in support of the savings curve shifting to the right, while the investment curve shifts to the left. Thereby, the savings–investment gap widens and the real output declines. The aggregate demand curve shifts to the left while the aggregate supply curve shifts to the right. This causes a widening gap between potential output and actual output. Thereby, price stability comes about by a depressed level of real output below the potential output.

At the low level of output the general macroeconomic equilibrium with aggregate demand curve intersecting the aggregate supply curve implies a resulting contraction in real output. Expansionary monetary policy shifts the aggregate supply curve rightward. In the situation of general economic equilibrium level of real output remains permanently below the potential level of real output. Thereby, savings as withdrawal remain above the anticipated investment, causing a mismatch between expenditure policy and monetary policy to establish real potential output with price stability. Now monetary

policy permanently loses its effectiveness and transmission power. To restore macroeconomic equilibrium, productive spending must make savings equal investment continuously over time. This would require the financial sector to link up with the real sector to generate increasing productivity while the business cycles stabilize. The marginal rate of substitution and competition between the financial and the real sectors now disappears. Monetary policy and its transmission now regain effectiveness in establishing a complementary linkage between money and the real economy through the function of friendly financial instruments based on “ $r$ ” (productivity) while interest rate “ $i$ ” is phased out. The principle of pervasive complementarities between money, finance, and the real economy now replaces the marginal substitution postulate of mainstream economics. The momentum increases by increasing “ $r$ ” until it replaces the rate of interest in the long run ( $i$ ).

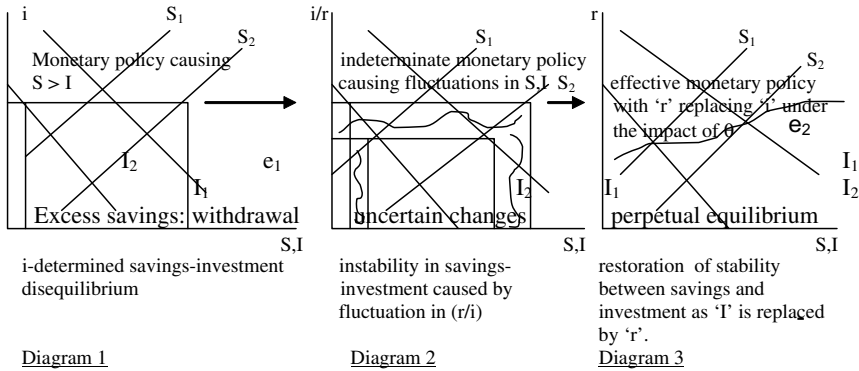
How is the ethical impact explained in the above arguments? Ethics and sustainability spanning economy and society are of the essence. In the case of monetary dynamics and the real economy through the function of proper financial instruments the concept of social and economic sustainability is attained as an organic unity by complementarities between these activities. Such a learning environment is established by the critical function of  $\theta$ -value inducing the variables as in expression (15.1).  $\theta$ -value then represents communicative knowledge in expressions (15.1) and (15.2). Generating  $\theta$ -value is of critical importance in monetary transmission for establishing transparency of monetary policy in the ECB.

In this regard, Mr. Papademos, Vice-President of the ECB (2008) writes: “For all of these reasons, the announcement of, and consistent commitment to, our monetary policy strategy constitute a milestone in our communication activities.” Good transmission of such  $\theta$ -value is fundamental in good market functioning. Thus,  $\theta$ -value helps to unify money and the real economy through the medium of effective monetary policy. The financial instruments that realize this organic unity are those that avoid interest rate. Instead, they invoke complementarities between the financial and real sectors, continuous savings-investment equality to smooth business cycles, and enhance the growth of real potential output by complementarities between monetary and fiscal policies. This is not to say that strict equality will permanently exist between savings and investment at each and every point in time. Rather, the idea is that the divergences between savings and investment over time will be narrowed down. The extent to which this narrowing down, that is, resource mobilization will perpetuate is a function of progressive  $\theta$ -values along the IIE-learning process.

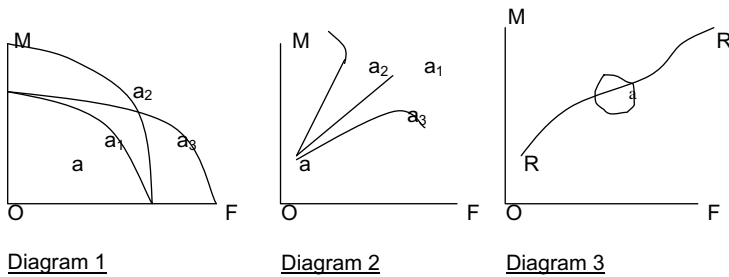
### ***15.6. Diagrammatic explanation of knowledge-induced monetary dynamics***

Figures 15.1 and 15.2 explain the opposite consequences that change the standard economic reasoning involving monetary transmission and sustainability in the comprehensive sense.

**Figure 15.1. Savings and investment disequilibrium and equilibrium caused by  $i$  and  $r$**



**Figure 15.2. Interest rate disequilibrium effects of monetary and fiscal policies**



The implication is that the monetary transmission process in terms of stabilizing the economic cycles has not been well communicated to establish monetary transparency in the market economy and in disseminating informed knowledge to society at large. That is, the role of monetary policy in its relation to the economy is not well understood, and thereby, not well received. When “ $r$ ” is well replaced by the rate of return (productivity rate), the implication is that monetary policy is effectively communicated to the market economy. Consequently, a permanent economic equilibrium is established by fully mobilizing all savings into productive investment in the real economy continuously. Withdrawal by way of savings is phased out. The perpetual sustainable path of economic expansion in this situation of a productive financial instrument replacing “ $r$ ” for resource mobilization is shown by the  $e_1e_2$  trajectory.

The trajectory  $e_1e_2$  is of a nonlinear form. Along it “ $r$ ” yields to the growing impact of  $\theta$ -value as new monetary and real economy synergy

arises and innovative financial instruments without “*i*” are generated. Figure 15.1, through its three diagrams, shows the ethical evolution of a productive economy governed by the proper communication and transparency of monetary policy in terms of the money–finance–real-economy organic unity of relations (circular causation). Sustainability both in terms of economic stabilization and institutional dissemination of economy and society-wide learning is best served by replacing “*i*” by “*r*”.

Next, we extend the above explanation of sustainability in the two opposite kinds of socioeconomic reasoning in Figure 15.2.

*M* denotes the monetary side of the economy underlying monetary policy, monetary transmission, and quantity of money. *F* denotes the fiscal side signifying productive spending. *M* is positively influenced by the growth of savings. *F* is positively influenced by the growth of productive spending. Hence, “*i*” influences *M* positively and *F* negatively. Contrarily, “*r*” influences *M* negatively in the neoclassical marginal substitution framework. “*r*” influences *F* positively. These substitutions are shown along the trade-off curve in (*M*,*F*). The shifts in the principle of pervasive complementarities are the consequences of competition between *M* and *F*. Thus,  $a_2$  and  $a_3$ , respectively, arise from  $a_1$ . In respect of the role of monetary policy positively influencing *M*, and thus negatively influencing *F*, as in the case of neoclassical marginal substitution case, the trajectory  $aa_2$  will be prevalent. But the same argument can be extended to the case of *F* being preferred. In that case, the trajectory  $aa_3$  will prevail. In respect of the complementarities between *i*, savings and monetary policy transmission, the economic expansion paths will be  $aa_1$ ,  $aa_2$ ,  $aa_3$ . This corresponds with Diagrams 1 and 2 of Figure 15.1. Contrarily, the complementarities (positive circular causation) between *r*, savings = investment, and monetary policy will correspond with Diagram 3 of Figure 15.1.

Furthermore, we note that complementarities between “*r*,” savings = investment, money, and interest-free financing instruments are embedded in a learning field like that shown around “*a*” in Diagram 3 of Figure 15.2. The “*a*”-region makes an organic synergetic field. The same property is generalized all along the trajectory RR, wherein pervasive complementarities between the good things of life exist. They can expand further by the ethical and social forces of replacing “*p*” by “*r*” everywhere. The learning trajectory RR complementing (*M*,*F*) in the money-finance and real economy organic interrelations (positive circular causation) under the impact of  $\theta$ -value is the path of total sustainability.

Diagrams 3 of Figures 15.1 and Figure 15.2 equally implicate the interest-free, productivity, and business cycle debate as presented above. RR differs from  $aa_1$  of Diagram 2 of Figure 15.2 by being a learning path, whereas  $aa_1$  is a steady-state optimal path, and hence has no simulative learning along it. Similar to the case of  $S > I$  in Figure 15.1 and its consequences in Figure 15.2, the reverse case of  $S < I$  can also be explained along the business cycles. The implications on instability caused in the

midst of variable “ $i$ ” and  $(i/r)$  as opposed to the possibilities of “ $r$ ” alone in a phased out regime of interest rates can be explained.

**15.7. Further explanation of Diagram 3 of Figure 15.2**

In Diagram 3 of Figure 15.2 we define  $\{.\}$  as the perturbation set of possibilities like in the region bounded by “ $a$ ” in Diagram 3 of Figure 15.2. Now  $\{dM/dF\} > 0$ , as  $\theta$ -value increases. This is the condition of pervasive complementarities caused by learning between  $M$  and  $F$ . Also  $(d/d\theta)\{dM/dF\} > 0$ ; but  $\{d^2M/dF^2\}$  can take any sign even as  $\theta$ -value increases in regions like “ $a$ ” along possible resource trajectories. Thus, no assumption regarding optimality and steady-state equilibrium is made. Yet the learning equilibriums of region “ $a$ ” in Diagram 3 of Figure 15.2 are stable in nature (Grandmont, 1989). That is because each gravitating point in this field is subject to the continuously evolutionary yet limiting  $\theta$ -values, as monetary policy transmission synergizes with the market order with ethical overtone along phases of development, that is, along the path of sustainability.

**15.8. The analytical dynamics embedded in the learning field of resource allocation**

A brief examination of the dynamics within the “ $a$ ”-region of Diagram 3 of Figure 15.2, while leaving out technical details, reveals the following intricacies.

Circular causation between the money–finance–real-economy variables under the endogenous influence of  $\theta$ -value simulates the well-being criterion,  $W(.),$  as

$$\text{Simulate}_\theta W = W(M, r, p, Y)[\theta]; \text{ each of the variables is influenced by } \theta \tag{15.7}$$

$$\text{Subject to } x = f(\theta, \mathbf{x}'(\theta)) \tag{15.8}$$

$$\theta = g(\mathbf{x}(\theta)) \tag{15.9}$$

$\theta$  is assigned ordinal values in respect of the ranking of  $\mathbf{x}$ -variables.  $g(\mathbf{x}(\theta))$  is a monotone of  $W$  (see Chapters 9 and 10). Hence, estimation of  $\theta$ -function is sufficient for a monotonic estimation of  $W(\mathbf{x}(\theta))$ .

New  $\theta$ -value arises by a polity-market restructuring of  $\mathbf{x}(\theta)$  at the end of specific learning process in unity of knowledge between the interacting entities.

In the above expressions, each element in  $\mathbf{x} = (M, r, p, Y)$  depends on the rest through the common embedding of these variables by  $\theta$ .  $\mathbf{x}'$  is the  $\mathbf{x}$ -vector excluding the selected dependent variable.

The system comprising expressions (15.7) or (15.8) and (15.9) forms a stochastic model with probabilities that are unlike the frequency probability measure. That is, because the “*a*”-region contains events that are determined by a combination of historical data, and new information arising out of institutional discourse and ethical valuation for future action. Restructuring is done on these grounds. Thus, the probability measure used in forming the stochastic values of the variables like  $(\theta, x(\theta))$  are measure-theoretic and governed by conditional probability functions.

### ***15.9. Connecting real monetary policy transmission to financial volatility***

The ineffective transmission of monetary transmission into the real economy through the function of financial instruments and proper monetary policy is reflected on financial volatility. Proper real monetary transmission mechanism can be realized by equating saving and investment continuously over time. In the absence of this condition, the ensuing business cycles will trigger financial volatility and cause rifts between the financial sector and the real economy. The real monetary transmission is deeply affected by the economy- and society-wide learning about its market-friendly effects. Let us now examine how the compound effect of learning by monetary policy transmission in the presence of interest rate (*i*) and the presence of productivity rate (*r*) enter the financial volatility equation. By definition, financial volatility (Vol) is computed by the formula

$$\text{Vol}(Q) = \text{standard deviation} \{ \log({}^t Q) - \log({}^{t-1} Q) \} \quad (15.10)$$

But if we write expression (15.10) in terms of the variance of the stochastic processes  ${}^t Q$ ,  ${}^{t-1} Q$ , say in respect of price movement, interest rates, rates of return, and divergences between savings and investment, we obtain the formula

$$\text{Vol}(Q) = \text{Var}\{\log{}^t Q\} + \text{Var}\{\log{}^{t-1} Q\} \quad (15.11)$$

While expression (15.10) measures financial volatility in terms of estimated log-linear forms of financial variables, expression (15.11) shows that financial volatility is cumulative over time in the log-linear form of the variable under consideration. In this case, financial volatility would be alarming if the rate of change in  $\text{Vol}(Q)$  over time for expression (15.11) would exceed a given ceiling as set by the financial authority.

But we will redefine financial volatility by including explanatory factors in the formula and studying volatility as change in the risk factor. This is done as follows (Choudhury and Bhatti, 2006):

$$\text{Vol}(Q) = (d/dx)[\text{Var}(Q)] \quad (15.12)$$

where  $Q = K(M, P, i/r, Y, \theta)$ ,  $K$  being capital movement influenced by  $x = (M, P, i/r, Y, \theta)$ , and can be taken as  $S-I$ . The variable  $x$  denotes any one of the selected element of  $\{M, P, i/r, Y, \theta\}$ .

Let  $Q = S-I$  in the log-linear form in terms. We can now construct the expression

$$\text{Var}(Q) = \sum_x a_x^2 \text{Var}(x)$$

where “ $a_x$ ” denotes coefficients of  $x$ -variable in

$$Q = K(M, P, i/r, Y, \theta)$$

$$\begin{aligned} \text{Vol}(Q) &= (d/dx)[\text{Var}(Q)] = \sum_x a_x^2 (d/dx) \text{Var}(x) \\ &= \sum_x a_x^2 (d/dx)[(\partial/\partial x')(\text{Var}(x))dx'/dx] \end{aligned} \tag{15.13}$$

Here  $x'$  is the reference variable in  $Q = K(M, P, i/r, Y, \theta)$  with respect to which  $\text{Var}(x)$  is partially differentiated. All these are the consequences of the circular causation relations between the  $x$ -variables of  $Q$ -function. The method was explained in the system (15.7)–(15.9).

In the special case we can write

$$\begin{aligned} \text{Vol}(Q) &= (d/d\theta)[\text{Var}(Q)] = \sum_x a_x^2 (d/d\theta) \text{Var}(\theta, x(\theta)) \\ &= \sum_x a_x^2 [(\partial/\partial x')(\text{Var}(\theta, x(\theta)))dx'/d\theta] \end{aligned} \tag{15.14}$$

$x'$  denotes any of the variable as applies in the vector  $(M, P, i/r, Y, \theta)$ .

**15.10. Some inferences on the monetary–real economy effects regarding financial volatility**

The implication here is that as  $\theta$  increases, that is, monetary transmission with transparency and learning across economy and society takes heightened effect, then  $\text{Var}(Q)$  decreases.  $S-I$  as a stochastic  $Q$ -variable tends to be zero. Along with this, the heightened effect of price stability, increasing real potential output, the equality of quantity of money with productive spending, and increasing  $r$  with decreasing  $i$ , all contribute to a decreasing  $\text{Vol}(Q)$ . The converse is true when  $|S-I|$  diverges along the business cycle. The following data on critical financial indicators bring out the inferences on financial volatility in relation to real monetary transmission and the other variables. Only selected data are available for developing countries to support our analysis in this chapter. We will therefore be more comprehensive in the case of the United States where economic recession forever exists in these times of high financial volatility.



This economic recession is bound to adversely affect the world economy in cycles for a long time in the future.

Table 15.1 data point out that although gross investment in billions of USD exceeded national savings, yet actual real GDP fell short of potential output. Inflation remained stable at approximately 3% annually. Yet there was significant mismatch between the rates of change of real GDP and total money supply. Bond yield as ratio of long-term yields to prime rate declined in the face of declining real GDP, increased money supply, and deepening investment gap. These are adverse signs of ineffective communication of monetary policy to the social and economic order.

The results also point out that there is no accord between theoretical predictions and facts. This suggests that governance of the economy should be conducted along lines of moment-to-moment simulation of the economic and social relations as facts. Discourse and good reasoning guide such experiences. This means that there is no such thing as economic fundamentals for all times, and upon which prediction, policy development and governance can be established. Alexander Gray wrote on such a character of economic imprecision: "Economic science, if it be a science, differs from other sciences in this, that there is no inevitable advance from less to greater certainty; there is no ruthless tracking down of truth which, once unbarred, shall be truth to all times to the complete confusion of any contrary doctrine."

In the light of ECB arguments on monetary transmission several points can be factored in to explain the prevailing ineffectiveness of monetary policy transmission to attain sustainable economic change (Papademos, 2008). These factors also beckon the end of sound economic reasoning and predictions in prevailing models. First, "the model or parameter uncertainty makes it hard to define and announce conditional intentions about the likely future path of policy rates..." Second, there is considerable disagreement on the "appropriate path of future policy rates ... especially in periods of heightened uncertainty and perceived structural change." Third, there is qualm that markets and public domain will fail to understand "announced future policy path on forecasts or assumptions about the future evolution of exogenous variables that will influence the choice of the policy path." Fourth, frequent changes of policy paths and mismatch between policy rates vis-à-vis interest rates will erode public and market trust on announced policies.

Furthermore, the implication in the case of ECB's focus on price stability as the linchpin of economic sustainability while governing the role of monetary policy in maintaining this with the concert of market-friendly adaptation to future evolution of policy rates conveys an important lesson. On this matter it becomes increasingly clear that no further predictability of economic fundamentals is available. For instance, price stability with monetary control would require a long-term lowering of interest rates and productivity gains by moving the actual output level closer to the potential

**Table 15.1. Some critical economic indicators: United States of America**

	2000	2001	2002	2003	2004	2005	2006
GDP at constant prices (10 × billions of USD)	981.70	989.07	1007.48	1038.13	1173.35	1243.89	1315.27
Output gap (% potential output)	-0.40	-1.30	-2.60	-2.30	-0.90	-1.30	-
Inflation index (2000 = 100)	100	102.83	104.44	106.83	109.70	112.71	115.40
Savings (10% GDP)	18.00	16.40	14.20	13.50	13.60	12.60	13.00
Savings (10 × billions USD)	176.71	162.21	143.06	140.15	159.58	156.73	170.99
Investment (% GDP)	20.80	19.10	18.40	18.40	19.60	19.80	20.00
Investment (10 × billions USD)	20	188.91	185.38	191.02	229.98	246.29	263.05
% change ratio of money/real GDP ratio (est)	(0-6)	(-1.5-0)	(2-6)	(3.5-6.5)	(3)	(1-3)	(2)
Yield in 10-years 3-months bonds (percentages)	+ 5	(2.0-3.5)		(0.5-3.5)		(-0.5-0)	
Prime rate (percentage) currently:							6.00

Source: IMF; World Economic Outlook; Bloomberg.com: rates and bonds, February 14, 2008. A world of possible financial futures, NowAndFutures.com.

real output level. None of these is possible. That is because as the real output gap narrows, expectations pick up and the economy gets volatile by competition for resource allocation between the financial and real sectors. Resulting effects are found to be growing concern on the side of price and interest-rate instability. Competition for financial resources between the real sector and the financial sector sparks financial volatility, as we have pointed out the arguments through all the expressions on capital market volatility and the real economy performance. Consequently, the same causes of marginal rate of substitution compounded by the inadequate monetary transmission mechanism in the midst of such faulty money–finance–real-economy relations, causes breakdown in the transparency of monetary policy communication. The money–real-economy linkage is disrupted and the financial instruments depending on and caused by fluctuations in the short-to-long term interest rates causes overall financial volatility. The whole idea of economic sustainability and price stability is thwarted.

### ***15.11. Conclusion***

This chapter has argued that consciousness in economic reasoning that comes by way of proper information-flow and the fusing of ethical consideration as learning inputs in generalized systems of social, economic, and scientific interrelations is lacking in mainstream economic theory. Besides, monetary policy taken up here as an example remains piecemeal application. If modeling is now based on received economic theory, the result is a failure of predictability on attaining socioeconomic sustainability. If it relies on institutional approach and discourse alone considering exogenous factors and the inability to govern them, then the result is uncertainty. Uncertain monetary policy causes loss of market and public trust on monetary policy and the real economy performance. All these effects result in the failure of transparency in monetary policy.

At the end, we have argued in this chapter that a new kind of economic, social, and scientific reasoning is needed to fill in the gap of ethical implications of learning in a generalized system of complementary relationships. This is the paradigm of endogenous ethics. It is particularized in this chapter to the case of money–finance–real-economy circular causation relations premised on unity of knowledge between these learning entities. Ethical endogeneity can be possible by taking away all that cause total economic volatility, not simply financial volatility.

We have argued that removal of interest rates and its negative causation in the money–finance–real-economy productive relationships is that particular way toward sustainability. The chapter has argued that such relationships explained by evolutionary kinds of learning through circular causation in the framework of their reinforcing positive consequences

constitute the essential meaning of ethical endogeneity and systemic learning of unifying entities. It becomes the basis of monetary transmission with transparency. It is gained in the money–finance–real-economy unifying interrelationships. In such a generalized system of interrelationships with pervasive complementarities between the entities, economic governance is neither institutionally imposed nor left to the mercy of unbridled market forces. The circular interrelationships are learned progressively. The way toward this is participation. It is understood as polity-market coordination with receptivity in economy and society. The resulting kind of economic thinking and policy transmission for structural change brings about transparency in the organic system of participatory actions and responses.

Such is the social discursive method of unity of knowledge in the polity-market learning processes. An economic paradigm deprived of such process-based learning in unity of knowledge between the participatory entities remains an imposition of externally imposed authoritative will. The consequences and the reasoning are not integrative.

The cause of global financial volatility is shown to emanate from the slowdown of the US-economy (IMF, 2008). Causes for this are shown as the slowdown in housing and consumption spending and its aftereffect on employment in the United States. These are variables for the real economy. But, as we have pointed out in Table 15.1, the economic relations remain soured toward rectifying the weakening situation. On the financial side, slowing down of global movement of financial resources will particularly hit the emerging economies. The mismatch between savings and investment will thus continue.

If the focus of economic future as engineered by international development-financing institutions is still on growthmanship for structural change, the total global volatility is nowhere in sight on a sustainable scale. There will be bumps along the road, as explained by the learning probability measures explained in the appendix. But if global economic reasoning and policy transmission follow the pattern suggested by our generalized system of unified circular causation in expressions (15.7)–(15.9), then certain true monetary–finance–real-economy interrelationships can emerge. Economics, society, and their scientific reconstruction now take up new visions of the future. Such is the revolutionary change that leads to sustainability. So at the end, Economics as the Queen of the social sciences has indeed decorated herself well with all the external posture and embellishments. But her interior is now permanently fraught with the insecurity of its divorce from human realities. The old Queen Economics can appear in public with a clarion call. But this has none of the appeal she had in her heydays of youth. Like the firefly, the Economics Queen has burnt herself, even at the very moment of her tempting forays. Economics as that Queen has soured.



## **CONCLUDING REMARKS**



## CHAPTER 16

# *Conclusion: Contributions to Economic Analysis*

In the end, it is time now to inquire what the contributions of this research manuscript are to economic analysis. This indeed is the expectation of the volumes that have now decorated the Emerald series on *Contributions to Economic Analysis* ever since the Nobel Laureate econometrician Professor Jan Tinbergen established the series in 1952. For assessing the contributions, we recapitulate the meaning of economic theory and analysis, a topic on which some of the great minds in economics and social theory have dwelled eloquently.

### *16.1. The normal science of economics*

Setting the field of economics as the study of value in exchange, [Blaug \(1968a, 1968b, p. 6\)](#) wrote:

The problem that gave rise to economics in the first place, the “mystery” that fascinated Adam Smith as much as it does a modern economist, is that of market exchange: there is a sense of order in the economic universe, and this order is not imposed from above but is somehow the outcome of the exchange transactions between individuals, each seeking to maximize his own gain. The history of economic thought, therefore, is nothing but the history of our efforts to understand the workings of an economy based on market exchange.

Emphasizing the universalizing principle of value in economic theory, [Stigler \(1970, p. 299\)](#) wrote:

A theory is a statement of general relationships; a theory of unique events is a contradiction in terms, and a theory of local events is simply uninteresting from the scientific viewpoint. The most pervasive problem of economic life is of course that of value, and this is why the routine and undramatic problem of value has elicited the supreme efforts of the greatest theorists.

From these reflections on economic theory and analysis and the nature of economics, we understand a few important elements upon which the rise



of the Kuhn's kind of scientific revolution in the socio-scientific order can be realized. Such economic events are of the importance of markets, market exchange, and the endogenous nature of market mechanism in the formation of value. Then there is the project on the search for a substantive theory of value, which economics equates with marginal utility under condition of scarcity of resources. Third, we note the nature of economic theory in being universal rather than local and rare.

The intellectual project of economics, finance, and the related disciplines must therefore be one of inquiring about a methodology that endows this field of knowledge with a permanent life that is unique and universal in the language of a general-system theory of "everything." Besides, if such an underlying theory transcends economics, finance, and their sister disciplines into physical sciences as well, then the inherent theory and application in the field of conceptual and empirical formalism become pathbreaking. A scientific revolution is in the making in such a case of socio-scientific universality. Besides, if the conceptual-empirical methodology remains universally invariant for studying problems of "everything," then such an intellection also becomes unique. A conceptual-empirical theory of "everything," as in the case of the socio-scientific formalism, bears the character of both universality and uniqueness.

### ***16.2. Toward a scientific revolution in economics***

We have noted in this work that the traditional meaning of the field of economics, finance, and their related disciplines, as also the compartmentalized branches of pure science, has failed to address the interdisciplinary problem of the human totality. Even as we went to the study of political economy in this work, we found that traditional approach in this area was subsumed in the study of the formation, acquisition, and distribution of wealth under conditions of power and self-interest. Thus, to the question, "Has economics as science progressed?" the answer is not so in the substantively epistemological sense. Yet as Einstein had pointed out, there can be no science without epistemology.

In this work, we were compelled out of necessity based on the emergence of a scientific revolution in economic theory and application to premise our conceptual-empirical worldview of Islamic economics and finance in a deeply epistemological foundation. The result was pathbreaking, first from the point of view of casting an altogether new outlook on the emergent discipline of Islamic economics, finance, and banking from a rigorously analytical viewpoint and giving this discipline its true authenticity of a socio-scientific inquiry.

Likewise, to the field of mainstream economics and finance, this work has contributed by presenting an altogether new theory of ethics and economics as endogenously integrated holism, yet treated by rigorous

scientific and analytical methodology. Indeed, in formalizing the field of ethics and economics by circular causality in well-defined well-being index pertaining to the general-system perspective of any issue and problem that remains embedded in the system and cybernetic of “everything,” we have presented a scientific theory of ethics and economics. Such are also the deeply epistemological and analytical pursuits of Amartya Sen (1990a, 1990b), and were of Keynes (O’donnell, 1989). Einstein saw in the study of ethics a scientific methodology as in the hard-core sciences. He wrote also on the forces that are traditionally thought to be extraneous to science as being very much a part of it, if subjected to analytical and epistemological methodology. In Einstein’s (Commins and Linscott, 1954a, p. 473) words, “Scientific thought is a development of pre-scientific thought. As the concept of space was already fundamental in the latter, we must begin with the concept of space in pre-scientific thought.”

### ***16.3. Summarizing the contributions of this book to ethics and economics***

The way that ethics was given its socio-scientific epistemological treatment in this work, is to consider ethics as a derivation from the moral law of unity of knowledge. In the field of Islamic socio-scientific investigation, the moral law is oneness of God interpreted as formal ontology, and how this influences the construction of organic unity of interacting, integrating, and evolutionary world-systems. In this way, God has been brought in the form of the divine law of oneness influencing the moral law and performing its impact on the ethical behavior of individuals and society by dynamic learning preferences. The divine law was thus made as the endogenous force in the unity of knowledge and the unity of the world-system, given diverse forms of all such embedded world-systems though with their specific issues and problems. Such an approach comprised the general-system worldview of unity of knowledge, which is what we referred to as the *Qur’anic Tawhidi Scientific Research Program (TSRP)*. It presented the universality and uniqueness of the scientific revolution for the socio-scientific study of “everything.”

Within this general-system worldview of unity of knowledge and its construction of the unified world-systems in respect of all issues and problems, there were the fields of Islamic economics, finance, and their sister disciplines. Consequently, we pointed out that the study of economics, finance, banking, and the diversity of fields, their issues and problems were interrelated across the synergy of diverse systems in the broadscale. We referred to such a way of treating the problems of Islamic economics and finance as the study of Islamic political economy and world-system. Such a world-system emulates what Fitzpatrick (2003, p. 127) wrote:

... [T]he philosophical distinction between reality and representation has collapsed into a ‘hyper-reality’. Whereas we could once distinguish between original and their copies,

hyper-reality implies that only copies exist and no originating source for those copies is identifiable. Ours, then, is an age of simulations that endlessly refer only to other simulations. The infinite circularity of these self-references is what Baudrillard calls the simulacra: everything is a reproduction of other reproductions. Society implodes in on itself and we cannot liberate ourselves from the simulacra.

#### **16.4. *The singular foundational axiom of Islamic economics and finance: Tawhid***

In the end, the conceptual foundation of every socio-scientific inquiry, with economics and finance being a particularization, stood on only one foundational axiom. This was the axiom of unity of divine knowledge and its formal ontology in the making of the unified world-system pertaining to the issues under examination. All other characteristics of the emergent problems under investigation derived their features from the foundational premise of unity. Thus, in every Islamic socio-scientific study, *Tawhid* meaning oneness of God explained by the oneness of the divine law was the sole foundational axiom.

This was the absolutist view that denied relativism. Yet on the stage of understanding and implicating the foundational axiom in social construction of world-system, diversity of discourse and methods as opposed to the absolutism of the epistemological methodology was extant. We explained this phenomenon as the combination of consciousness (*tasbih*) in discourse (*shura*) to form a discursive medium of mind and matter, society and science. Economics and finance thus emerged as learning systems embedded in “everything” else, as far as the evolution of knowledge enabled this widening comprehension in the knowledge–time–space domain of actions and responses. The core axiom of scarcity of resources in mainstream economics, also blindly imitated by Islamic economics and finance, was logically abandoned. “Everything” was endogenously induced by the episteme of unity of knowledge by circular causality between the member entities, variables, and their interrelations.

#### **16.5. *Studying the principle of universality and uniqueness in this book***

The principle of universality and uniqueness in the epistemic way of understanding Islamic economics and finance and the embedding world-system was a mathematical reality, and hence formally true. It could lend itself to the conceptual–empirical breadth of socio-scientific investigation. The *Tawhidi* unity of knowledge was thus the law of this world and the Hereafter, synergizing these domains of cognition into functional interrelations. The mathematical reality of universality and uniqueness of the *Tawhidi* worldview in “everything” is solved by addressing the self-referencing problem of evolutionary topologies in the knowledge–time–space dimension (Choudhury and Zaman, 2009).

A brief mathematical description of the evolutionary topology underlying the learning sets in knowledge–time–space dimension is given in the appendix. The idea here is to note that this learning domain is permanently characterized by evolutionary equilibriums across continuums of knowledge–time–space dimension. Consequently, only temporary equilibriums exist, soon to be replaced by evolutionary learning equilibriums as the magnum of the knowledge moves like the swelling tides of the brimming sea. Such learning equilibriums are cross-sectionally interacting and integrating to form temporary equilibriums out of many equilibriums existing across the multiple systems that embed the socio-scientific problem under investigation, creating thereby organic unity of systems between them. Every such experience in interaction and integration is continuously followed by evolution of knowledge, and thereby, of the entities, agency, variables, and relations of the organically unified world-systems, forming them into greater overarching domains *res extensa*. The interactive, integrative, and evolutionary (IIE) cybernetics of learning processes was thus explained as the unique and universal nature of the general-system phenomenological model of unity of knowledge and the world-system induced by this episteme.

Contrary to the knowledge domain in unity of knowledge, we have briefly explained the nature of the methodology of “de-knowledge” (falsehood), which we equated with rationalism. Rationalism does not bring God and the transcendental unity within its realm of reasoning. Hence, rationalism is a short-term and narrow view of reality. It cannot inculcate a substantive principle of organic unity in its formalism. Consequently, rationalism cannot build a world-system out of organic unification of the world-system by the oneness of the divine law in the latter. It cannot explain how the rational process is derived from the divine origin of knowledge by a substantively socio-scientific conceptual–empirical epistemic methodology. Thus, rationalism does not explain circular causality, which we explained in depth in this work. Hence, in rationalism we do not have a proven methodology to explain the essentially endogenous relationship of causality in the world-system between diverse entities, forms, and relations. In the end, rationalism cannot explain the nature of the socio-scientific universe in knowledge–time–space dimension. It is constricted by its narrow understanding of reality within the time–space dimension only. Consequently, the limited reasoning of rational processes does not have a methodology to fathom the phenomenology of the knowledge–time–space reality.

But contrarily, the argumentation of the knowledge–time–space dimension according to the *Tawhidi* worldview can deconstruct into explaining the nature and workings of rationalism in the socio-scientific world-system, as also the worldview of unity of knowledge and this world-system. For this reason, the origin of both truth (= oneness) and falsehood (= rationalism) arise from the episteme of *Tawhid* according to

the *Qur'an* and the *Sunnah*. This episteme is the explanatory basis of both truth and falsehood.

In the special case of the axiomatic foundation of economic thought, mainstream and *prevalent* Islamic economics and finance, the axiom of resource scarcity forms the core of all reasoning. In the sciences, the same principle grounds the Darwinian and Popperian universes of conflict, competition, and evolution. The latter rationalistic nature of reasoning is found to pervade all of sciences (Hull, 1988). It totally denigrates God and unity by invoking its own functional ontology of dichotomy between mind and matter (Russell, 2001; Dawkins, 2006).

In the prevalent intellection in Islamic economics, finance, and the related disciplines, there has been a similar perversion of the *Tawhidi* epistemological core of all reasoning. This work has dwelled on this intellectual remiss. It contributes to the status quo of Islamic economics, finance, and the sister disciplines in the realm of mind, though they have enabled the commercial architects to catch up with global capitalism and material gains of the principal shareholders. The common stakeholders' well-being of change is not realized, except by a self-motivated conviction of religiosity.

### 16.6. Universality and uniqueness in the self-referencing methodology

The principle of universality and uniqueness of the *Tawhidi* worldview is also proven by the extension of the self-referencing methodology. Briefly writing on this problem, Choudhury (2002a, 2002b) and Choudhury and Zaman (2009, op. cit.) summarize the self-referencing question of socio-scientific logicity in the following way.

In the incompleteness theorems (Smullyan, 1992), we define a "belief function" of a sentence by  $BX$ , meaning that if an *advanced reasoner* believes in  $X$  then he also believes in  $BX$ ,  $X$  being a provable sentence in  $L$ . By writing

$$X = [\{\theta\} \in \{P(\theta)\} \leftrightarrow \theta^* \in P^*(\theta^*)] \quad (16.1)$$

We must also have by the condition of the advanced reasoner

$$B[\{\theta\} \in \{P(\theta)\} \leftrightarrow \theta^* \in P^*(\theta^*)] \quad (16.2)$$

to be true.  $B$  can be made to generate an evolutionary impact ensuing from the attained knowledge-induced processes in the circular causation and continuity model of unified reality.

Using the circular causation relations emanating from the primordial *Tawhidi* String Relation, the model of unified reality for world-systems is described analytically by

$$[\{\theta\} \in \{P(\theta)\} \leftrightarrow \theta^* \in P^*(\theta^*)] \leftrightarrow B[\{\theta\} \in \{P(\theta)\} \leftrightarrow \theta^* \in P^*(\theta^*)] \text{ etc.} \quad (16.3)$$

$\leftrightarrow$  denotes recursive interrelationship between monotonic transformations of knowledge-induced relations in phases of IIE-learning. It marks the basis of circular causality, pervasiveness of complementarities, and thus participatory relationships. Such attributes permanently remain endogenous in the many relations across knowledge–time–space dimension. It is worthwhile here to explain again briefly in footnote the substantive meaning of endogenous relations.<sup>1</sup>

Thus, to convert Gödel's result of incompleteness theorems to apply to the *Qur'anic* theory of knowledge, we have to use the axiom of self-referencing. According to the *Qur'anic* exegesis, such a transformation in Gödel's incompleteness theorems means that provability of either truth statements or false statements in decidable, consistent, and complete system of logical sentences can be attainable, if and only if knowledge of *Tawhidi* truth  $\{\theta\}$  and its rationalistic mathematical complementation (opposite denoted by  $\sim$ )  $\{\sim\theta\}$  are derived as distinct logical "sentences" that describe the universe from the *Tawhidi* epistemological level.

These are then taken up at the functional ontological and ontic (evidential) levels by the rule of guidance, law, and instrumentation of the *Qur'anic* methodology. The fact that provability is decidable and consistent, it establishes that a system of logical sentences is well-defined in the *Qur'anic* worldview. The *Qur'an* is therefore foundational in the understanding and fellowship of a grand system of divinely endowed

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<sup>1</sup> Desai (1989) describes the exogenous and endogenous system of relations in terms of the monetary and real economy relations as follows: Say the money aggregate  $M$  is related to three variables,  $x$  denoting price,  $y$  denoting output, and  $z$  denoting other variables.  $M$  is endogenous if the following circular causation relations hold and are both explainable and estimable:

$$M = f_1(x, y, z); \quad X = f_2(M, y, z); \quad Y = f_3(x, M, z); \quad Z = f_4(x, y, M)$$

These relationships between the endogenous (circularly related by recursive causation within the system of  $(x, y, z)$ ) variables would show strong endogeneity if the estimated relations are statistically significant, and thus lead to robust predictions of any one variable with respect to the other ones. Otherwise, the relationship is weakly endogenous, differentiated in reference to given levels of statistical significance. On the other hand, if one of the relationships in the above expression is violated or is not estimable, then the system is exogenous and this independence between the given variables also causes independence of the monetary aggregate from the other variables in the system of relationships.

The circular causation method is obviously established in the case of strong endogeneity of the variables. In our population-economy case, the simple model ought to show strong endogeneity in terms of such a circular causation relational system of the complementary type as a criticism of immiserization growth theory. The presence of the ethical parameter denoted by  $\theta$ -value and its induction of all the variables is central to the ethical induction of the economy as a whole.

knowledge-flows. The Islamic socio-scientific worldview has thus to be studied in this perspective of comprehending the totality of the grand system of relations as explained by the divine law and guidance.

### ***16.7. Universality and socio-scientific modeling***

We continue on now to explain further the theme of *Tawhidi* universality and uniqueness in socio-scientific modeling. The meaning of scientific model is that of an abstraction of ideas to explain and analyze a problem under study in order to derive some real-world results. Such results may be theoretical, and thus normative, or they are positivistic, and accordingly applicative; or most importantly they are a combination of normative and positivistic realities. A model is therefore a representation of theory and concepts that the analyst or a given school of thought manifests as a scientific cognitive expression of the inherent theory according to their swing between the normative and positivistic sciences (Blaug, 1993).

The inferences on theory and model building that we derive from the received scientific doctrinaire, referred to Popper (1965) and Samuelson (1963), and explained by Boland (1989a, 1989b), are that theory and its cognitive power in theory, model, and modeling perception are all piecewise understanding of reality. Nothing is truly real in this concept of reality. The inference here is true of both, the derivation of theory and modeling from the rationalistic epistemological roots, and the interpretation of the concept or empirical results emanating from the use of the theory and model to explain the holism of the problems and issues within a universal concept involving the world-system. We take the world-system as the mind-matter congeries of ideas, issues and problems, applications, and inferences.

In this work, we have proved that modeling in the *Tawhidi* sense is a meta-phenomenological intellectual enterprise. That is how God through the moral law and its creative effect on ethics induces “everything” in the world-system. In this respect, this work has extended the meaning and reasoning behind socio-scientific phenomena and the world-system modeling beyond the axiom of “scarcity” and a crass meaning of materiality in dichotomous world-system.

Theory and model and the art of modeling socio-scientific abstraction play distinct roles in intellection. Intellection at the end shapes the world as we experience it and vice versa. Thus, because of the heavy burden of responsibility that theory and modeling entail in guiding policies and institutions and menus and preferences in the small and large scales, these pursuits need to be injected by moral consciousness and ethical responsibility. According to this moral and ethical calling, theory and modeling being conscious intellectual endeavors, they must see the world-system in its widest perspective of moral and ethical change. When so

understood, much of the socio-scientific theory and models that we have inherited in our intellectual heritage can be questioned as being flawed by substantive incompleteness. Hence, an incorrect projection has been given to the shape of things prevalent and yet to be experienced in the future of human experience.

Thus, we have defined market, market process, and economy in the light of the knowledge induction that carries ethics endogenously across the world-system. We have explained this concept substantively in reference to the extension of the topological definition presented by Debreu. The emergent theory of “value” in terms of the endogenous nature of knowledge in the well-being function was defined contra-neo-classical theory of marginal utility as economic value represented by relative prices and marginal utility for consumers and marginal cost for producers. Now prices in multimarkets and multigoods and multiservices, like any other variable, were determined by their particular circular causation relations that altogether feed into the ethical index arising from the well-being objective criterion. This is of the Walrasian type of multimarket general equilibrium system. But the circular causation system is strongly endogenous in nature and is based not on relative prices and quantities as in the Walrasian general equilibrium system. Rather the central premise is unity of knowledge that is empirically cast in terms of the commensurate measurement of knowledge-values, while it is epistemologically grounded on unity of knowledge.

### ***16.8. The conceptual–empirical perspective of this work***

This work has thus been able to derive the empirical approach to normative phenomenon, thus giving the positivistic meaning the “ought-to” socially reconstructed relationship between entities and variables in the specific problems under examination. The circular causation system was thus estimated and then simulated to yield the positivistic state of the desired complementary interrelations between selected variables followed by their normative possibilities. In all such social reconstructions, the purpose and objective of the Islamic law, namely the *maqasid as-shari’ah*, was the determining factor. It thus brought together not only the rise of consciousness (*tasbih*) but also the social discourse (*shura*) to establish a discursive society (participatory = complementary) that consciously recognizes and implements the law of unity of knowledge in human and socio-scientific experience.

### ***16.9. Winding up***

Winding up to where we began in this book, we note that the meaning of and reasoning within economic science have been extended to their limits



as an embedded social whole. The limits of market and market exchange have been extended to learning behavior by process of change in the knowledge–time–space dimension. The theory of value, which comprises the most intricate problem of economic theory, has been extended to encompass well-being criterion in unity of knowledge and the endogenous market–polity interrelations. All these have been accomplished by logically formalizing a theory of learning process with dynamic preference changes according to the rise of human consciousness in concert with the details of the organically unified world-system endowed by the epistemology of unity of knowledge. Logical analysis at the conceptual–empirical level has been retained at the expense of rationalism and the postulate of economic rationality as constricted time–space situations.

The most pronounced contribution of this work to economic analysis is this cogent conceptual–empirical formalism to guide policy, structural change, and social reconstructions. We have thus taken the study of socio-scientific fields away from the differentiated world-system. The particular study has been of economics, finance, and the related disciplines that we observe today according to received theory and data both for mainstream field and the Islamic field in these disciplines. The overall contributions of this work then build on the prospective futures of a participatory and complementary world-system model while studying its prevalent state of disharmony. In these respects, this work has contributed a scientific revolution to the world of socio-scientific thought, while particularizing the contributions to economic theory and analysis.

## *Appendix A*

### **16.A.1. Technical appendix to Chapter 16: evolutionary learning equilibriums**

The existence of endogenous learning in unity of knowledge (*Tawhidi* dynamics as expressed by the IIE-process), together with the emergence of evolutionary equilibriums realized in such systems, causes perturbations in attaining such equilibriums. In the case of market equilibrium for instance, the equilibrium is not actually attained; it is only approximated by learning. Continuous learning disturbs the equilibrium point to a higher (or lower) plane of unity of knowledge in the exchange system. Such learning market equilibriums are the logical consequence of relational epistemology caused by IIE-processes among a vast spectrum of embedded variables and their systems that interactively influence movements in the market exchange mechanism.

We show here that the field of market equilibriums in the evolutionary learning sense is densely populated by temporary equilibriums (Grandmont, 1989). None of these can be actually attained as predicted. Such

equilibrium points are perturbation points existing merely as expectational equilibriums (Boulding, 1955), not attained states. They are subjected to continuous evolution under the impact of learning in unity of knowledge.

Consider the market equilibrium,  $E = (x^*, p^*)$  in market clearance quantity  $q^*$  and corresponding equilibrium price  $p^*$ . Note that each of these is influenced by learning as per the epistemology of unity of knowledge. We denote this learning factor by  $\{\theta\}$ -values attaining a probability limiting value of  $\theta^*$  at  $(x^*, p^*)$ . Such a probability limit occurs over a given  $N_1$  rounds of IIE-learning processes that characterize a given major learning juncture, although learning occurs continuously and in continuum of markets and embedded systems. We write a continuum of exchange points by  $\{(x, p)[\theta]\}$ .  $[\theta]$  outside means induction of each of the inner variables by the limiting  $\theta$ -value of the IIE-discourse on specific issues and problems under investigation.

However, note that in evolutionary fields of  $\theta$ -values there is no unraveling of facts in either the  $\theta$ -field or the  $y(\theta) = ((x(\theta), p(\theta))$ -values. In other words, as  $\theta$ -values evolve, along with these the knowledge-induced  $\{(x, p)[\theta]\}$ -values evolve as well in their socioeconomic and interconnected system domains.

Consider, for example,  $\theta \in \{\theta_1\} \cap \{\theta_2\} \neq \phi$ , for two intersecting sets 1 and 2 of  $\theta$ -values. According to the evolutionary character of  $\theta$ -values in this intersecting and expanding region

$$d[\{\theta_1\} \cap \{\theta_2\}]/d\theta > 0, \text{ and} \\ \text{plim}_{[\text{numbered interactions}]} \{\theta\} = \theta^* + \varepsilon(\theta) \tag{A.1}$$

That is,  $\text{Prob}(|\theta - \theta^*|) = \varepsilon(\theta) > 0$ , for every  $\{\theta\} \in \Omega$ , and  $\text{Prob} [\Omega \rightarrow \Omega] = 1$ .

Consequently

$dy(\theta)/d\theta > 0$ , subject to the above conditions.

$$\text{From this we can define } y^*(\theta^*) \text{ in a way similar to } \theta^*. \tag{A.2}$$

Next define an equilibrium point in an evolutionary field of  $(\theta, y(\theta))$ -values as by  $(\theta^*, y^*(\theta^*))$ , such that all the conditions of (1)  $\leftrightarrow$  (2) are as reflexive relationships (Soros, 2000). A description of the evolutionary space of  $\{\theta^*, y^*(\theta^*)\}$  is thus generated as a system of relational processes.

We define the evolutionary path  $\{\theta^*, y^*(\theta^*)\}$  as the History of evolutionary experience, as  $\theta^*$ -values assume different values, with  $\theta^*$ -values belonging to  $\{\theta_1\} \cap \{\theta_2\}$ , subject to conditions given in (A.1). Likewise, every nonlinear monotonic transformation of the History =  $\{\theta^*, y^*(\theta^*)\}$ , subject to conditions of (A.1), is also History. A monotonic positive transformation of the experience of unity of knowledge is an experience in unity of knowledge.



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